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SPECIAL LIBRARIES

NOVEMBER 1960, VOL. 51, NO. 9

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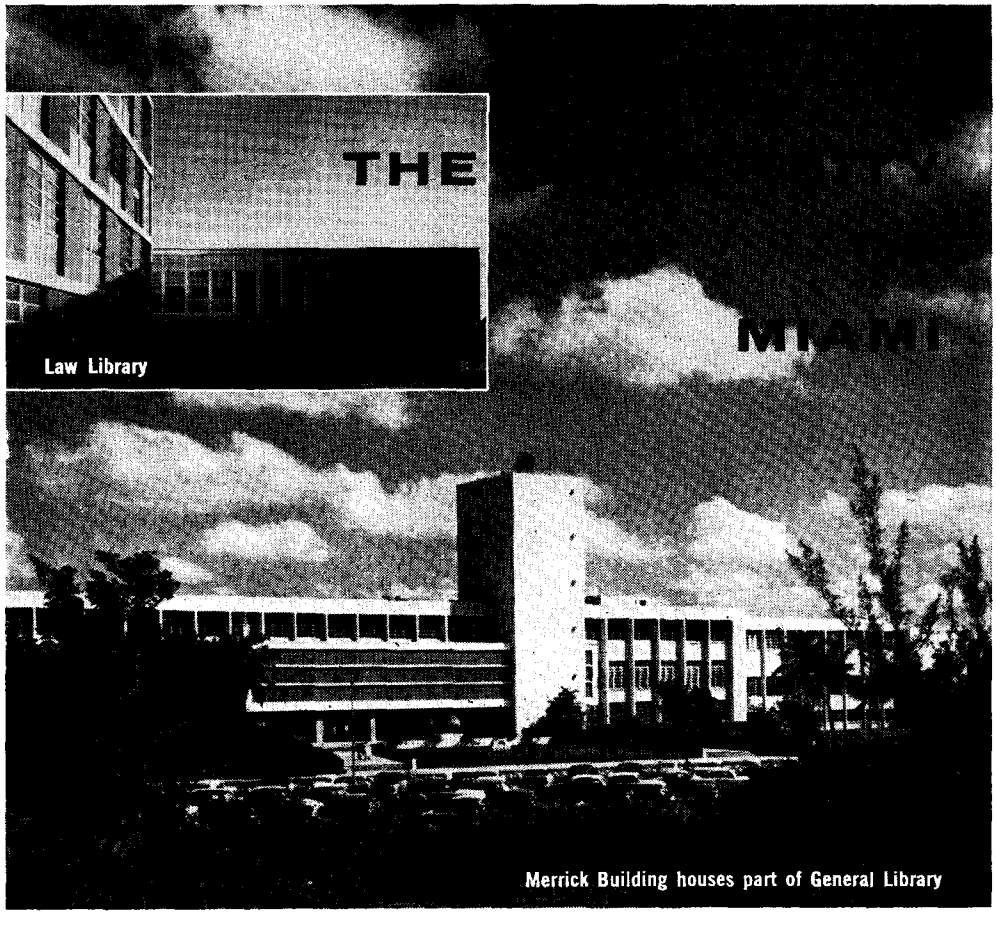

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SPECIAL LIBRARIES

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Special Libraries Association

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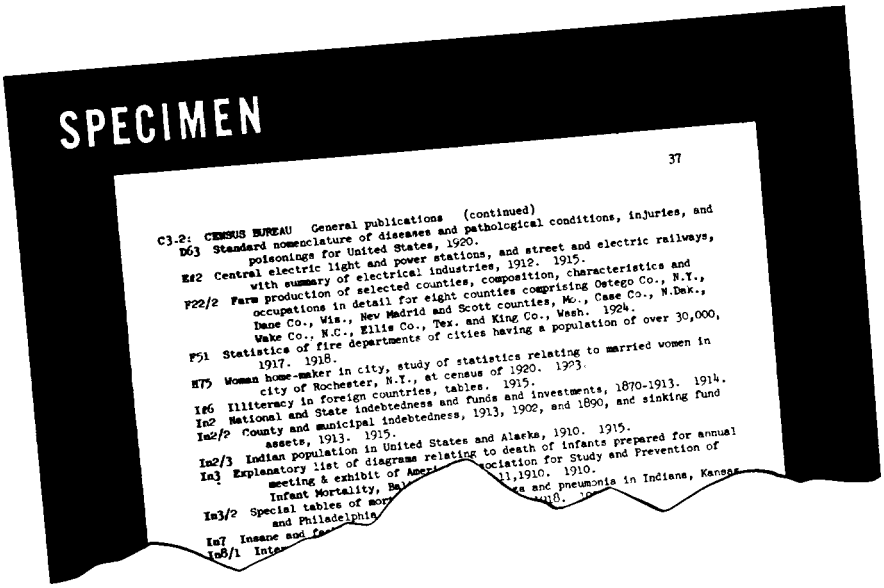
New reference book fills 14 year gap in government documents classification



DOCUMENTS OFFICE CLASSIFICATION NUMBERS FOR CUTTERED DOCUMENTS, 1910-1924

by Mary Elizabeth Poole and Ella Frances Smith

Painstaking accumulation of lists from many sources has resulted in this valuable compilation of numbers for individual documents in Cuttered classes. This work covers the period between the 1909 *Checklist* and the time Documents Office Classification numbers began to be listed in the *Monthly Catalog*. It is in two parts. The first, by Miss Poole, covers A-Y3; the second, by Miss Smith, is from Y4-Y9. Book size is approximately 6½x8¼, bound in cloth, price $25.00 a copy. Order now, during publication, for prompt delivery. Order OP 6268.

Also by Miss Poole:

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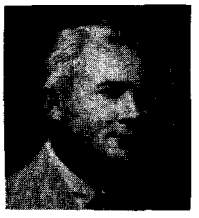
Some Functions, Interactions and Problems of Communication

W. KENNETH LOWRY, Manager, Technical Information Libraries
Bell Telephone Laboratories, Inc., Murray Hill, New Jersey



THE PROBLEMS OF communication in a society as complex as ours are well-known. For those whose sole business it is to facilitate communication, there is unlimited opportunity and challenge. The nature of the problems involved is such that they are susceptible to study and improvement. It is not surprising that many involved in this work are investigating the applications of machines to information handling functions as an aid to communication. What is the significance of these machine investigations for library operations? Are the basic problems faced by libraries susceptible to machine solutions?

Communication involves a number of functions, and it is well to keep in mind that information storage and retrieval are just two of these. In a community direct contact is not always possible, and consequently an elaborate system of communication devices and filters have been developed as an alternative.

Although these devices have been useful in certain respects, they have also presented new problems in communication. Attempts have been made to cope with the mass of written information by preparing abstracts, indexes, classifications, bibliographies and other filtering devices. In the process meaning has often been lost or distorted. In many instances the use of such devices requires a specialized knowledge of their structures and limitations, which is held only by those who designed them. This has discouraged their use by those for whom they were supposedly designed. As in the case of primary publications, the number of secondary publications (information filters) has become so large that it is not possible for most people to keep pace with even filtered information. There are several hundred abstracting and indexing services in science alone.

There are a number of basic communication functions affecting most libraries; for each there are problem areas. Isolating problem areas for each function is in itself a rather formidable job, but they can be conveniently grouped under three general categories as problems of meaning, problems of machines and problems of operation. I shall try to demonstrate the importance of attacking these problems on the basis of interfunctional relationship rather than in isolation.

The first communication function is WRITING AND EDITING articles or books FOR PUBLICATION. In performing this function, authors must observe the constraints imposed by publishers and printers regarding format and presentation. They must also write with the objective of offering new contributions to knowledge. This requirement does not argue against authors who provide useful syntheses of published literature, but it is one that applies to "rehash" artists. The problem posed by the function of writing, insofar as librarians are concerned, is to determine from what is written that which constitutes meaningful and useful items for the library clientele to be served. What aid can be expected from machines in solving the intellectual problem of selecting useful publications for library collections?

The second communication function is PRINTING AND PUBLISHING, and here again librarians are faced with the problem of selection. Publishers also have the problem of selecting manuscripts that will be well received in a highly competitive market. Associated with this is timeliness. Can machines assist in determining what is timely and useful?

Presented before the Documentation Division, June 6, 1960, at the 51st SLA Convention in Cleveland, Ohio.

A third communication function involves the general ANNOUNCEMENT OF WHAT HAS BEEN PUBLISHED so that librarians and others may obtain it. Through publishers' announcements, book reviews and special aids such as those published by R. R. Bowker Company, it is not too difficult to learn of publications available in the United States. On the other hand, most libraries do not readily learn of the vast majority of foreign publications, and this poses a problem with items of possible interest. Is it likely that machine systems can help solve this problem?

The three foregoing communication functions affect library operations, but the problems associated with them are largely beyond the control of libraries. Whether these problems can be solved, with or without the aid of machine systems, will probably be determined by actions taken by authors, editors, printers and publishers. Any library influence will take the form of persuasion or cooperation with these groups.

The following nine communication functions are, however, in large measure within the control of libraries, and decisions on eliminating or correcting problem areas must be made by librarians. Since these are functions of individual libraries, they will be treated as such rather than as functions and problems affecting the library profession as a whole.

After information is written, published and announced, the librarian must determine what portion of the total he needs to meet his local requirements. He must select. SELECTION demands determination of valid information requirements, a most difficult problem but a necessary function of communication in library operations. It cannot be adequately handled by simply checking library holdings or circulation statistics, although this may be helpful. Nor can it be expected that occasional requests for purchase offered by patrons will help materially. The information required must be obtained from users, and to be meaningful, a user should define his needs rather accurately.

But how is he to do this? He is unsure as to what his future information requirements will be, and he frequently does not know what information in peripheral areas of interest will be of value to his work. To date attempts have been made to establish better information requirement fixes by studies and surveys of various types, and these are much needed to turn librarians away from the "by guess and by gosh" approach. Machines have been used for tabulation and correlation of results, but the basic problem remains. Can we expect a machine system to tell what information should be acquired by a library prior to the time a user is aware that he needs that information?

A fifth function performed by libraries is the PHYSICAL ACQUISITION OF INFORMATION to meet needs. The problems here are largely operational and can usually be handled by good management and simple equipment. It is doubtful that machines as sophisticated as electronic computers would be useful except possibly in very large libraries.

The sixth function, and probably that about which librarians are less in agreement than any other, concerns the SUBJECT ANALYSIS AND ORGANIZATION OF INFORMATION. It is here that the ageless problems of classification, indexing and coding are encountered. I should emphasize that these are intellectual problems first and operational problems second. In some cases they may be susceptible to solution by statistical analysis of the use of language, but experiments in this direction are far from conclusive at the present time. In striving for solutions by this method, the use of machines in connection with word frequency counts is not nearly so important as the concepts. Machines are indispensable as a means for testing concepts, but they are in no sense the progenitor of the ideas involved.

The problems of information analysis and organization are directly related to those of information requirements, retrieval systems and information use. They also constitute the principal difficulty encountered by library users in their attempts to retrieve information from most libraries. To a certain degree newer machine systems will affect and aid attempts to solve these problems, but basic improvements will depend largely on intellectual and operational advances. Good basic research and good management are the prime requisites; good machines are secondary.

After information is acquired and put under bibliographic control, most libraries undertake to announce to their users the new information available to them. LOCAL ANNOUNCEMENT usually is a selective process geared to local information requirements and is one of several filtering devices used to keep readers currently aware of new information. The problem in announcement is to select significant items of interest, announce them promptly and determine the best format and arrangement of announcement vehicles. We have found that to do this effectively at Bell Laboratories requires four types of bulletins to cover specific segments of our literature interests. We would be more than pleased to turn this job over to a computer but, with one exception, fail to see how any advantage would be gained by doing so.

An eighth function of communication is STORAGE OF INFORMATION AS PHYSICAL OBJECTS OR AS DISTILLATES in the form of abstracts, classifications, indexes or other forms. The problems of physical storage posed by an increasing literature would seem best resolved by wise selection and weeding policies coupled with the assistance offered by cooperative acquisition, microforms and secondary storage programs. It is possible that conventional techniques of physical storage may be significantly improved with the probable developments in facsimile transmission and reproduction equipment within the next few years.

Right now the storage of bibliographical data, i.e., information about information, can be accomplished on magnetic tape or film as readily as on a 3 x 5 inch catalog card. Titles, abstracts, even books may be put on tape and stored if desired. There are no major machine problems preventing this. The chief reasons for not doing it are economic and the need for effective retrieval techniques.

The ninth communication function is INFORMATION RETRIEVAL. How does a librarian insure that information in the library, which users need, is retrieved when requested? This requires first, that a library have a retrieval system that can produce information adequately and second, that requests for information can be readily translated into the language used by the system for retrieval. The retrieval language may be subject headings, class numbers, code numbers or any of several other forms.

Conventional library retrieval systems leave much to be desired, so let us consider some of the reasons for their failure. Is it because the library is unaware of the information requirements of its users and consequently fails to include them in its collection? Is it due to faulty analysis and indexing on the part of the cataloger? Is it the result of a policy that prescribes specific headings or general headings? Are the library rules on how to use the catalog so complicated that they discourage users? Is it because the language of requests cannot readily be translated into the language of the retrieval system? Is the system so complex that the user cannot employ it successfully without special knowledge of its design? Obviously, an affirmative to any of these questions could conceivably give the reason for failure of a system. The interesting fact is that machine systems could fail for exactly the same reasons. They must cope with these problems no less than manual systems.

Another function of libraries is to PROVIDE LOAN OR REPRODUCTION COPIES of its materials to patrons. There is a basic conflict between the reference function and loan function of most libraries that is not easily resolved except by costly duplication of materials. For those who cannot always come to the library and read information on site, the circulation of library materials is essential. On the other hand, a research worker who has a list of references he wishes to consult in the library is frustrated when items he needs are out on loan. He is further dismayed if the circulation files cannot put him in contact with the co-worker who has borrowed the item he urgently requires. The simple solution to the reference-circulation conflict would be not to lend items at all but instead provide reproductions of books and journal articles upon demand. Although simple in concept, this poses practical difficulties, including those of copyright. However, with the rapid advances being made in machine technology and current attempts to deal with the copy-

right problem, it is very likely that machines will do much to help solve this problem. Similarly, there is no reason to doubt that the technical problems associated with mechanized charge-out systems will be eliminated if competent attention is paid to these problems.

The eleventh communication function concerns INFORMATION TRANSMISSION, which is closely allied to the loan and reproduction functions. The techniques available for transmission of written information may range from handing a book to a customer at the loan desk to the automatic display of abstracts on a television receiver at a scientist's desk. Measured in terms of newly developed techniques of data transmission, we have to admit that the time required to complete an interlibrary loan between the East and West Coasts seems rather excessive. The week or more in transit represents not only a delay in getting information to a user but also means the book is unavailable for use by anyone. This may not present a problem in most cases, but to the degree that it does, libraries are hampered in efficiently performing their communication function. It is a suitable area for further development of facsimile and other transmission systems.

The last function of communication with which most librarians are concerned is that pertaining to USE OF SERVICES AND MATERIALS PROVIDED BY THE LIBRARY. Studies and surveys in this area are essential to assist in the planning and development of programs to meet local needs. They are also of value in eliminating nonessential and costly services yielding a low return on the library investment. Machines can be of assistance in analyzing and correlating data resulting from use studies, workload statistics and business operations of the library. Such machines are of a relatively low level of sophistication and are readily available to most libraries.

Interrelationship of Functions

The foregoing indicates some of the basic functions and problems of a library when viewed as a communication system and attempts to assess these in the light of new, evolving documentation techniques. To what degree these techniques may help, there is some uncertainty. One thing is certain, however—if their potential values are *not* investigated and if experiments are not made with machine systems, their applications to library operations will remain a mystery.

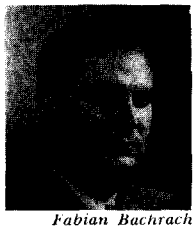
The functions and problems discussed have been with libraries for years, and many librarians are concerned that seemingly little progress has been made in coping with them. Perhaps this is because attempts to improve one problem area of library operations has aggravated the situation in other areas. I recall an example some years back where an organization was much concerned about the adequacy of its science collections and spent several hundred thousand dollars to take care of this problem. The influx of materials created a major cataloging problem, and although funds for book purchases were readily supplied, it was impossible to obtain either funds or personnel for additional catalogers. At last report most of the valuable publications were resting comfortably in a warehouse. This is obviously a miserable way to run a library.

A library is a communication system, and like any system it has certain inputs, operands and outputs. The efficiency of a library system, or any system, will be determined by the success in correlating and bringing into phase the various subsystems involved. The communication objective of a library is obvious and simple—it is to bring the reader to the book. It is not to select, control, store, retrieve, compile—these are functions of communication, not objectives.

The systems approach aims at tying these functions together with careful attention to their relationship; for they interact and compete with each other, constantly tending to put the communication system out of phase. It aims at gaining reasonable balance and orderly operation of a system in terms of its objective. These principles are just as valid for machine systems as for manual systems, and librarians contemplating machine systems should not be misled into believing that a piece of expensive hardware is the answer to all their problems. It takes more than machines to make the library a truly effective communication device.

The Big Black Box at Your Beck and Call

DR. KARL F. HEUMANN, Director, Office of Documentation
National Academy of Sciences-National Research Council, Washington, D. C.


Fabian Bachrach

"YOU KNOW MORE than you think you do." With these encouraging words the most famous baby and child care book ever written seeks to orient its readers to the tasks before them. If I can approach the subject of computers with even a tenth of Dr. Spock's common sense, I shall be satisfied.

Imagine that somewhere in your company there is a new computer. Your management didn't buy it for the library but because there was some "pay-off application," which simply means that it was installed because it was expected to save money.

Two different situations affecting the library might exist. The *less* likely one is that early in planning someone asked the librarian for his forecast of possible uses of the computer, someone took these forecasts into account in scheduling, and someone actually notified the library when plans were ready and the computer delivered.

A much more likely situation would be that the computer was considered, planned for, purchased, installed and put into use without the slightest consideration being given to the possibility of its library use. Then, when the pay-off application turned out to use up only about three and a half days each week, somebody started to comb the company for other applications, and he finally entered the library. From that point on there might be sporadic efforts to fill the unused time, but since any realistic estimate of library use comes to several hours a week at most, further progress would be up to the librarian. Just how this should be done depends pretty much on local conditions, but I can give one further hint—all managements are sensitive to costs, and even *experiments* that might lead to savings can be legitimately supported by the librarian, not to mention more obvious or direct uses. I would particularly caution against becoming involved with computers because "it is the thing to do" or because of some intra-company competition. Only a program of fully-worked-out costs and procedures can really reflect successfully on the library.

Condensed from a talk presented before the Documentation Division, June 6, 1960, at the 51st SLA Convention in Cleveland, Ohio.

Relations to Manufacturers and Programers

Manufacturers of data-processing equipment are interested in promoting the best and most extensive use of their equipment in a customer's own circumstances. For this reason a manufacturer's representative is often a good person for a librarian to know and to educate in library problems. The representative probably knows more about the black box than anyone else, particularly in cases where some special piece of equipment—a typewriter linked to a paper punch or a device to print out a special form for instance —is obviously needed. He can often suggest an appropriate device or, in case it doesn't exist, see about having it built. The data-processing industry has come so far so fast in the past five years that no request can be totally unrelated to some previous problem, and a librarian's needs often connect with other, earlier work. It's a good idea to know the engineer who installs and services the black box.

Programers can be helpful people to know too, for they are the clever intermediaries between a librarian's ideas and wishes and the precise "machinese" necessary to describe them usefully for machine implementation.

At one time programing was not only much more difficult than it now is but was also very time-consuming—programs requiring a man-year to write were not uncommon. Things have improved greatly in the past few years and are likely to continue improving. It should be a matter of prior arrangement that programing skills are available to the librarian and that programers have some general grasp of library problems and procedures. The facts of life about acquisitions, purchase, cataloging, circulation and reference work ought to be discussed at length with these programers. At a time the library wishes to start some work, they will then have a common store of terms and background, and it will not be necessary to carry out a hasty educational program.

It is particularly useful to have programers look at the whole library operation so that a mechanized arrangement for one aspect does not put other parts out of balance. This is practically the whole meaning to the widely-used phrase, "the systems approach." A rumor has reached me about a large library where the acquisition procedures, especially purchasing of books and periodicals, was thoroughly reorganized to use mechanical aids where possible, with the perhaps predictable result that mountainous piles of books now exist in the cataloging department. To put this another way, a friend of mine says that experiences such as these remind him of a hobby horse factory where all the tails are inserted by a high-speed tail-inserter and all the decorations are painted on by hand.

It is also possible that programers may have pieces of programs already available that by being patched together with but little new work can be helpful. There is widespread sharing of already-written programs in the data-processing industry, and a librarian's efforts to tap this source are likely to be rewarded. This is particularly likely in the area of literature searching where quite a lot of work is going on.

Relations to Users

The point of all this, of course, is to take advantage of what a machine can contribute to increase library service to users. Whenever an acquisitions program runs smoother or is more current, whenever records are more accurate and up-to-the-minute, whenever the catalog has been aided in some special category, whenever control of classified material is appreciably improved, then the machines have been used wisely for the librarian has made them his servant to aid the techniques in which he already is an expert. New approaches should not be ruled out, but if a librarian will start with his own knowledge first and build on that, later experimentation ought to be soundly based.

I am particularly interested in the prospect of machine searching of technical literature, and it is here that many library skills can be used. One of the most vital of these skills is a procedure known in "documentalese" as "negotiation of the question," and any experience a librarian may have had in reference work will certainly be pertinent and useful here. After facing for years questions like, "I want to know something about organic chemistry" or "Is there a book on manufacturing techniques in the library?" it should not be difficult to transfer reference techniques to a new environment. As usual, the more one knows about subject analysis, whether indexing, classification, subject heading or whatever, the better he will be able to serve inquirers. The tremendous speed and capacity of the devices now available, or promised, should be a constant challenge to expand and experiment with reference services.

Very little concrete information is now available on some "best method" of performing any of the activities I have mentioned with the help of machines. To me this is an exciting situation, one in which good ideas should be tried out in as many cases as possible. Compromise and standardization will come soon enough. It has happened over and over again that insights into these problems have preceded by years their theoretical justifications. We are probably living in a formative period that ten years from now will seem of the utmost importance in establishing significant guidelines in this area.

The Principles of Computer Operation

DR. I. A. WARHEIT, Information Retrieval Systems
Advanced Systems Development Division, IBM Corporation, Washington, D. C.

THE WAY COMPUTERS work has been a great mystery to many people and the subject of endless cartoons and jokes. Computers are, of course, extremely complicated machines composed of thousands of elaborate electronic circuits. Like most mechanisms, however, their basic principles are easy to understand.

As librarians, we are going to use computer-like devices for our reference work and for preparing bibliographies. We should become as familiar with these machines as we are with our current library gadgets. B. R. Faden* wrote an excellent series of articles on punched card equipment last year in *Special Libraries;* in this presentation, I shall omit punched cards and confine the discussion to electronic digital computers. These are the devices that will be used as information storage and retrieval machines.

Binary Concepts

The binary or "base 2" principle is the basic concept on which computer machines work. Essentially, all the machine can tell is if something is present or absent. Either there is a hole in a card or there isn't; either there is an electrical current flowing or there isn't; either there is a magnetic spot with one polarity or another; either a light is on or it is off; either a relay has an open contact or it is closed (Figure 1). Using the two symbols 0 and 1 to represent all quantities, here is how a machine counts:

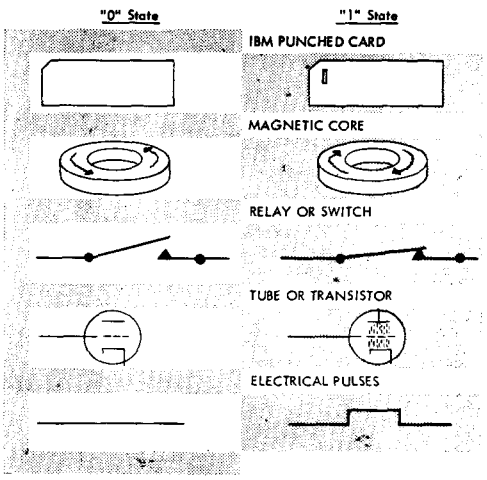


Figure 1
Different types of absent-present situations.

BINARY	DECIMAL
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	10 or 0

and so on.

Thus the positions do not represent units, tens, hundreds or thousands as in the decimal system; rather they signify units, twos, fours, eights, sixteens and so on. The on and off condition shown by the 1's and 0's is referred to as a BIT of information. Thus for the digit 1 the 1 bit is on; for the digit 2 the 2 bit is on; for the digit 3 the 1 and the 2 bits are on, and so on.

Some machines are pure binary, while others are binary coded decimal. This means that instead of binary bits continuing indefinitely, a new four-column field is started at each decimal. These bit codes are also used to code alphabetic characters. Such codes are referred to as alphameric codes. Figure 2 shows a seven bit alphameric code. The lower four positions are the numerical section, the

* FADEN, B. R. Information Retrieval. *Special Libraries,* vol. 50, 1959, p. 162-5; 197-200; 244-9, 392-7.

Presented before the Documentation Division, June 6, 1960, at the 51st SLA Convention in Cleveland, Ohio.

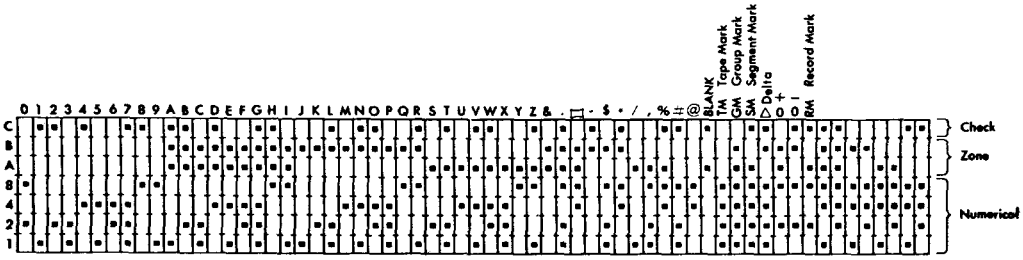


Figure 2
A seven bit alphameric code for a binary coded decimal machine.

next two positions marked A and B are the zone section, and the top line marked C has what is known as the check bit. To code A there are 1-bits in zones A and B and in the 1 position; B is shown by 1-bits in zones A and B and in the 2 position; C by 1-bits in zones A and B and in the 1 and 2 positions. This is continued through the first nine letters, and then the zone bit is changed so that J is shown by 1-bits in zone B and in the 1 position. This is continued for nine more letters, and the zone mark is changed again so that the letters S through Z use the A zone and the numerical positions.

Thus the binary coded decimal consists of six binary positions divided as follows: (0 is equal to 1010)

00 0001 through 00 1010 represent 1-9, 0
11 0001 through 11 1001 represent A-1
10 0001 through 10 1001 represent J-R
01 0001 through 01 1001 represent S-Z

The top zone marked C is referred to as the check bit. This is a mechanism that the machine uses to check itself and is called a PARITY CHECK. A character stored in the machine is checked each time it is moved from one location to another to make certain it has an even number of bits. In order to meet this test, the C bit or check bit is set on or off for each character being stored in this binary coded decimal. As this conversion is made, a device in the machine counts the number of on bits in positions 1, 2, 4, 8, A and B. If the character consists of an odd number of bits, the C bit is set on; if the character consists of an even number of bits, the C bit is set off. Thus a check bit is added for numbers 1, 2, 4, 7, and 8 and for alphabetic characters A, B, D, G, H and so on. Thus every time a character moves through a circuit, the machine checks the number of bits moved. If it is an even number, everything is all right. If it is an odd number, the machine stops and flashes an error signal. There are, of course, other code configurations such as eight bit codes with an odd number parity check, but the principle remains the same.

Stored Programs

The basic philosophy of a data processing system is that there is a self-controlled performance of procedures. This is simply a series of actions or movements, each depending on another and requiring no operator intervention in the completion of the series. A common example of such a series of actions is the performance of an automatic record changer. Such a series of actions is called a program. In data processing systems the program is, of course, very much more complex than that of a record changer. In punched-card data processing, the wires in the control panel actually comprise the program of instructions. A program can be changed by changing the wires or removing one control panel and replacing it with another.

A stored-program data processing system has a great deal more flexibility and capacity than is possible with a unit-record system, i.e., punched-card equipment. A stored program involves storing a set of program steps or instructions in the machine. The basic requirement, therefore, is a memory where information can be stored. This memory can be any number of devices: a magnetic core, a magnetic drum, a magnetic tape, a deck of punched cards or other new, special devices. Usually, in addition to the main memory,

there are auxiliary storage units where information may be stored temporarily or the results of arithmetic may be accumulated.

To deposit information in the memory requires some form of input. This has to be a series of electrical signals usually generated from machine-readable text or from keys and switches. This input can be from punched cards, perforated paper tape, magnetic tape, a keyboard or magnetic ink as used on some bank checks.

Having been stored, the information now must be manipulated. This is done by the arithmetic and logic unit, which is usually referred to as the central processing unit (CPU). The logic of a machine is its ability to execute program steps, to evaluate conditions and select alternative program steps on the basis of those conditions. The logic controls COMPARISONS, BRANCHINGS (alternative decisions), MOVE and LOAD operations (transfer of data or instructions). For example, the contents of the auxiliary storage can be compared against information in memory. It can be determined if the record in storage is higher, lower or equal to the corresponding data in memory. This high-low-equal compare is used, for instance, when alphabetizing names or searching for a specific subject heading. For example, when comparing the name Smith in storage with the name Jones in memory, Smith is "higher" than Jones; compared with Smith, Jones is "lower." In comparing numerical fields, the numbers may be compared directly or by using arithmetic. If the storage field is subtracted from the memory field, a negative result indicates that the storage field is higher. A positive result indicates that the storage field is lower, while a zero result indicates that the fields are equal.

After the information has been manipulated, it has to be delivered to the user. The output can be in the form of a punched paper tape, a magnetic tape, a printed record or a typewritten message.

Magnetic Memories

The main memory is most commonly either a magnetic core or a magnetic drum. The magnetic-core memory or storage unit is composed of a number of tiny rings made of magnetic material. Several wires are passed through each of these rings, and each ring is magnetized.

Every magnetic field has POLARITY. This can be illustrated by two ordinary horseshoe magnets—they attract each other firmly when turned one way and repel each other when turned the other way. Similarly, a magnetic core possesses a magnetic field, and its polarity can be reversed by passing a current through wires. Thus a core can be magnetized in either of two ways, which can be described as either positive or negative.

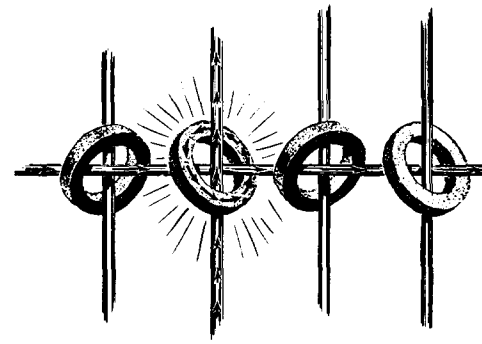


Figure 3
A core magnetized by two wires.

These phenomena—magnetism, reverse magnetism and the change from one to the other (see Figure 1)—are used by the magnetic-core storage units to store information. A core magnetized in one direction contains a BIT of information having a value of 1; when the polarity is reversed, the value of the bit is zero or NO-BIT. These cores must be arranged so that any combination of ones and zeros representing a character can be written magnetically or "read" back when needed.

To accomplish selection, another wire is run through each core at right angles to the first. When half the current needed to magnetize a core is sent through two wires, only the core at the intersection of the wires is magnetized. No other core in the string is affected (Figure 3). Using this principle, a large number of cores can be strung on a screen of wires; yet any single core in the screen can be selected for storage or reading without affecting any other. Such an as-

sembly of wires is referred to as a plane (Figure 4).

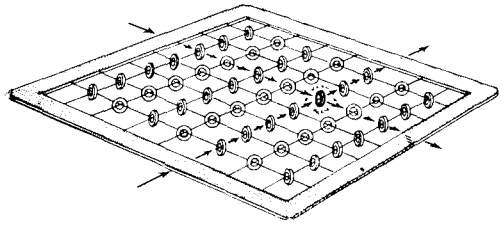


Figure 4
A plane in which one core is magnetized.

These magnetic core planes are stacked, and, in the case of the seven bit binary coded decimal described above, seven planes are needed: one for the check position, two for the zone position and four for the numerical position (Figure 5). The letter A is placed in core memory as shown. There are other wires threaded through the cores which sense or inhibit the pulses. However, there is no need to go into the complexities of the circuitry.

A magnetic-drum memory is a steel cylinder plated with a cobalt-nickel alloy. This coating can be magnetized in a series of tiny spots or cells. The effect of magnetizing a cell is the same as if a tiny bar magnet was imbedded in the surface of the drum. As the drum rotates at a constant speed, information

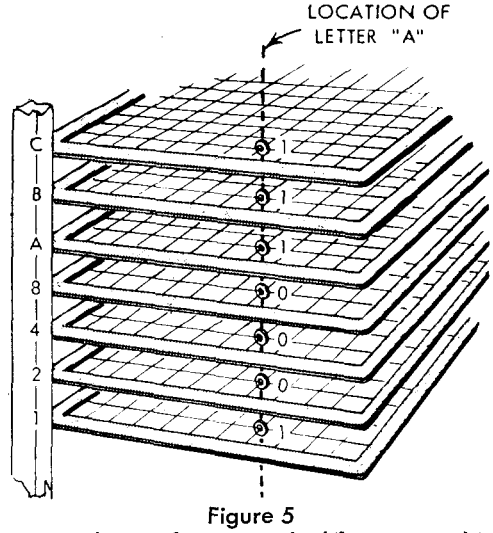


Figure 5
Seven planes of cores stacked for a seven bit binary coded decimal machine.

is written by magnetizing cells as the surface passes a read-write head (Figure 6). The head consists of read and write coils of fine wire wound around a center core. The cells are magnetized by sending pulses of current through the write coil. The direction of current flow determines the resulting polarity of a cell. Consequently, cells can represent either 1's or 0's, the two digits used for binary recording in all machines.

When a cell that has been magnetized passes under a read-write head, its magnetic state can be sensed by current induced in the read coil. Each drum has a specific number of storage locations, each of which is addressable.

Auxiliary Storage

Auxiliary storage of information is provided by magnetic tape or magnetic disks. Magnetic tape is the principal input-output medium used by computer systems. Computer tape is similar to tape used in home tape recorders. It is a plastic tape, one-half inch wide and coated on one side with a metallic oxide. Data are recorded as magnetized spots or bits in the metallic oxide.

For handling and processing, tape is wound on reels containing up to 2,400 feet of tape. The magnetic tape unit, which functions both as an input and output device, moves the magnetic tape and performs the actual reading or writing of information.

Magnetic disks are thin metallic disks about two feet in diameter coated on both sides with a ferrous oxide recording material. The disks are mounted on a vertical shaft, each disk slightly separated from the adjacent one. As in the case of drums and tapes, data are stored as magnetized spots located in concentric tracks on each face of the disk. At the side of the disk stack, one or more access arms move under control of the computer to any desired track on any disk. Magnetic recording heads mounted on these access arms read or write as directed by the computer. The arm is forked so that, on entry into the stack of disks, a recording head is carried to each side of one disk. Thus, it is possible to read or write on either side of a disk.

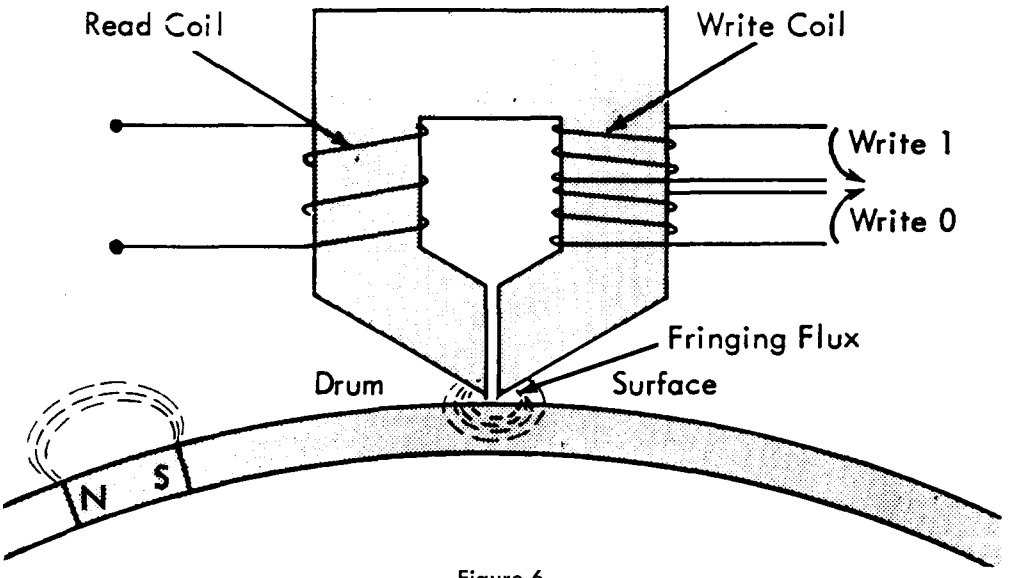


Figure 6
A read-write head magnetizing cells on the surface of a rotating magnetic-drum memory.

Although magnetic tape is the principal input medium used for computers, punched cards or punched tape may also be used. Magnetic ink, which can be read by both man and machine, has recently been used, especially on bank checks and deposit slips.

Central Processing Unit

Nearly all the operations within the computer are performed by transferring data from their memory locations through a control or processing unit and back to memory. This central processing unit controls and supervises the entire computer system and performs the actual arithmetic and logical operations on data. The processing unit can add, subtract, divide and compare numbers in a manner similar to a desk calculator but at very high speeds. Complex calculations are always combinations of these basic operations. The processing unit can make logical decisions. It can distinguish positive, negative and zero values and transfer this information to other units of the machine. For example, it can branch, i.e., transfer, to another instruction or operation if a comparison is equal; it can stop all operations if an error is indicated; it can add if a sum is plus or subtract if minus, and so on. In its control functions it can activate any part of the machine, such as connecting the printer or tape unit, moving data to storage or resetting registers.

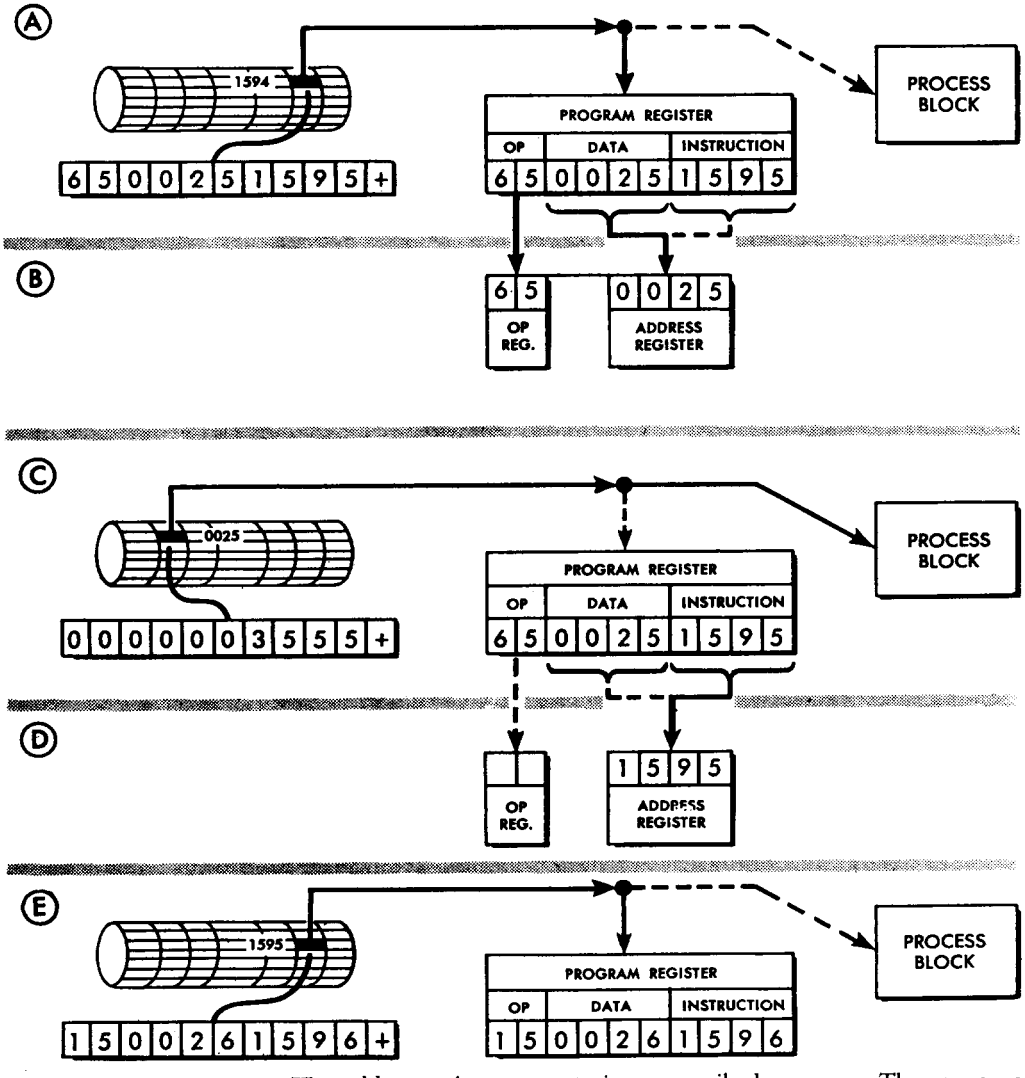
Essentially, the control section can be compared to a telephone exchange. The path of conversation between one telephone and another is set up by appropriate controls in the exchange itself. In the computer, execution of an instruction involves opening and closing many paths or gates for a given operation, just as connecting the proper lines allows conversation to take place between two distant telephones.

The components that make up a central processing unit include registers, counters and adders. A register is a device capable of receiving information, holding it and transferring it as directed. The electronic components used may be magnetic cores, transistors or vacuum tubes. Registers are named according to their functions and are, therefore, sometimes referred to as accumulators, storage registers, address registers and instruction registers. The more important registers have small lights associated with them. These are the blinking lights on the console.

The counter is similar to the register. Its contents, though, can be increased or de-

Figure 7
The steps carried out by the central processing unit.

LOCATION OF INSTRUCTION	INSTRUCTION			OPERATION INSTRUCTION
	OP	DATA	INSTRUCTION	
1593	21	0005	1594	STU
1594	65	0025	1595	RAL
1595	15	0026	1596	ALO

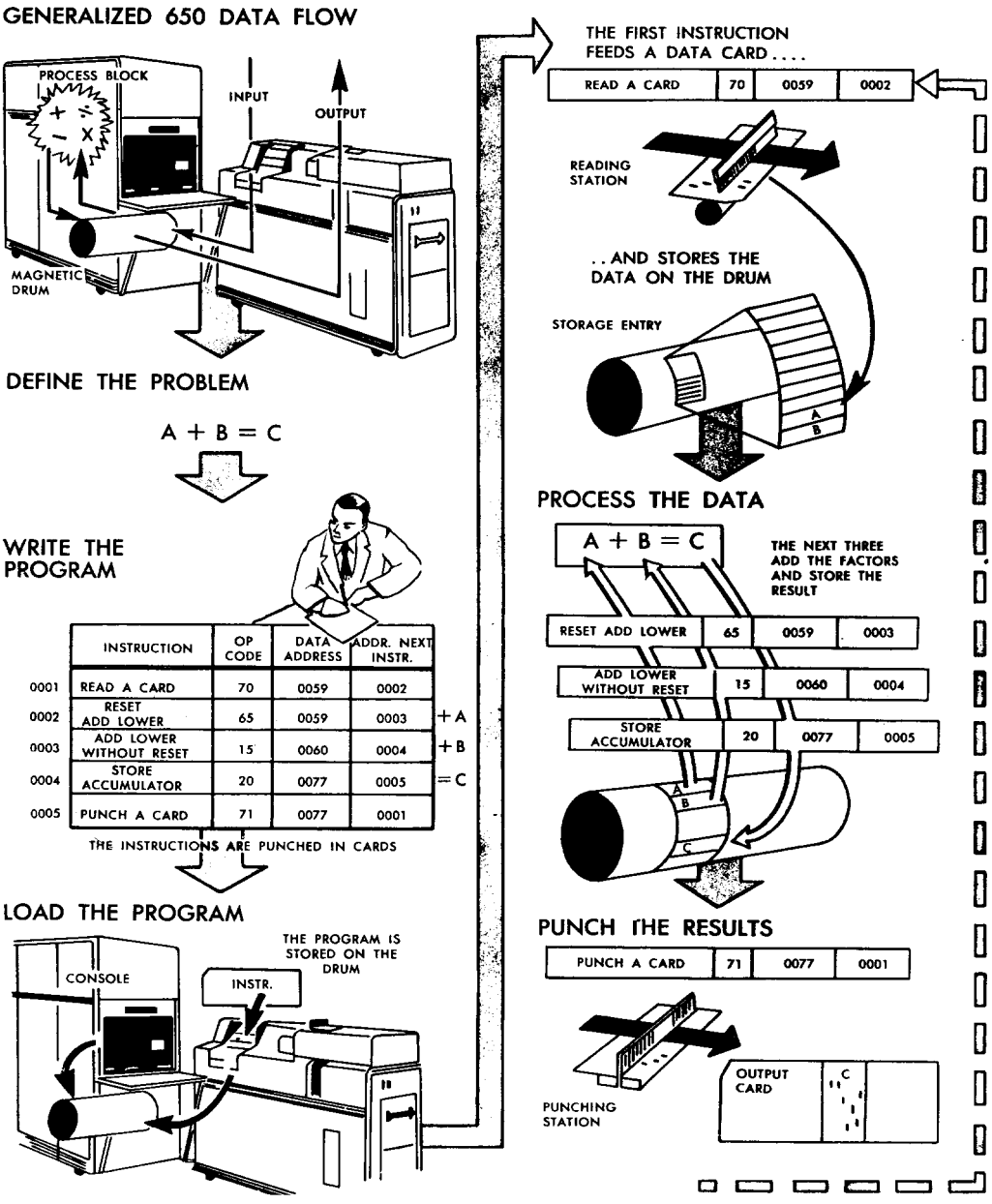


creased by some amount. The adder receives data from two or more sources, performs additions and sends the result to a receiving register.

To receive, interpret and execute instructions, the central processing unit must operate in a prescribed sequence. The sequence is determined by a specific instruction and is carried out during a fixed interval of timed pulses.

The actual processing is shown in Figure 7. In step A the contents of general storage

Figure 8
Flow of data into and through a computer.



location 1594 is transferred to the program register. The instruction is RAL, reset and add lower accumulator. In step B, the digits 65, the operation code that stands for RAL, and 0025, the data address, are moved to the OP and address registers. The instruction, 65, in the OP register is analyzed. This tells the machine to reset the accumulator to zero and then add the contents of some storage location into the lower half of the accumulator. The content of the address register, 0025, is analyzed to determine from which storage location the data will come. In step C the contents, 3555, of storage

location 0025 is transferred to the process block of the system where the actual operation will be performed. In the meantime, the OP and address registers are released and reset. In step D the instruction 1595 in the program register is moved to the address register. The address register is analyzed where the next instruction is located (1595). In step E, the contents of general storage location 1595 is transferred to the program register, and the next instruction ALO (add lower accumulator) is initiated.

A typical flow of data into and through a computer is shown in Figure 8. Although the illustration represents an arithmetic operation and the output is a punched card, it could just as well be the selection of a bibliographic reference, and the output could be a print out of this reference.

The thing to remember is that all the operations are carried out at electronic speeds in the thousandth and millionth of a second and are carried out with phenomenal accuracy. By taking advantage of this great speed and the ability of the machine to make thousands of complex comparisons in a very short time, it is possible to search large files. The information, however, must be so organized that full advantage can be taken of these abilities. There is nothing really mysterious about the mechanisms involved. The challenge remains for the librarian to build his indexes so he can use the powerful tools modern technology has provided him.

Applications of Machines to Library Techniques

Introduction

THE SUBJECT OF THE APPLICATION of machine techniques to library repetitive and clerical operations is one of great interest to many people. Periodicals have carried a large number of articles about information retrieval by librarians and non-librarians (mostly the latter) on how information approaches must be modernized. Valid as many of these discussions are, they have caused a certain amount of resentment among many librarians, who feel that the field is being invaded by specialists with little appreciation for us, our concepts or the values we hold dear.

This panel will *not* be devoted to information retrieval. It will not be a discussion of how machines will replace us but how they can help us perform some of the routine, dull and unprofessional tasks that take up so much time in so many libraries.

Let us be realistic—much of the work in libraries *is* clerical and repetitive, and the library user and evaluator is often struck more with the image of the librarian performing these duties than professional work. At the same time most librarians are confronted by manpower shortages within their organizations. Such things as overhead ratios, indirect budgets and economy drives prevent us from doing many of the things for our users that we feel we ought to be doing.

Most of the industrial and governmental organizations we represent possess some mechanized data processing equipment. I am not talking about computers—I mean the sorters, keypunchers, collators and printers that are usually found in accounting departments and are relatively simple and inexpensive to operate.

This presentation is devoted to examining how this kind of equipment can help us by taking over clerical functions and allowing us more time for the professional tasks which will raise our professional status and our salaries. The writers are all fellow librarians, who are not interested in abdicating their responsibilities. They are interested, and have succeeded, in finding simpler, faster and smarter ways to run their libraries.

HERBERT S. WHITE, Moderator

Circulation Control

WILLIAM H. RICHARDSON, Reference Librarian
Sandia Corporation, Albuquerque, New Mexico

THE APPLICATION OF machines to circulation control is not a new development. The first charging machine, the Dickman Book Charger, was put on the market in the late 1920's. This machine, by operation of a lever, stamped on the book card the date and the borrower's number. In 1932 Gaylord brought out an electrical version of this machine. Photographic and audio charging came into use during the 1940's. Remington Rand, Diebold and Recordak developed photographic charging machines that recorded the book and borrower information on film. Dictating machines were used to record the same information. During the 1950's other approaches to charging machines were developed. Addressograph-Multigraph has designed a machine to imprint loan information from embossed plastic book and borrowers' cards similar to credit cards. The machine brought out by Bro-Dart prints the transaction on heat-sensitive paper. Telecomputing Corporation has experimented with punched paper tape to record the loan information but has put nothing on the market.

All these devices have been adequately covered in the literature. Helen Geer's book on charging systems[1] covers the subject thoroughly, and her article on charging machines[2] and Ralph Parker's article on the adaptation of machines to book charging[3] provide helpful summaries of developments in the field.

However, the machines I have mentioned were developed mainly with the needs of public libraries in mind. Public libraries, generally, have wanted to keep only a time record of their loans. They do not want to be able to tell their patrons if a book is charged out or who has it. Consequently their circulation systems reflect these conditions. Academic and special libraries, on the other hand, need access to circulation records by book and by borrower. Academic libraries have used a two-card circulation system that provides access to all three kinds of loan information. One card is filed by book number, with a tab or color arrangement to indicate due date, and the other card is filed by borrower's name. Punched card systems can provide access to the three kinds of loan information in one file.

The use of punched cards in circulation systems is not a new development either.

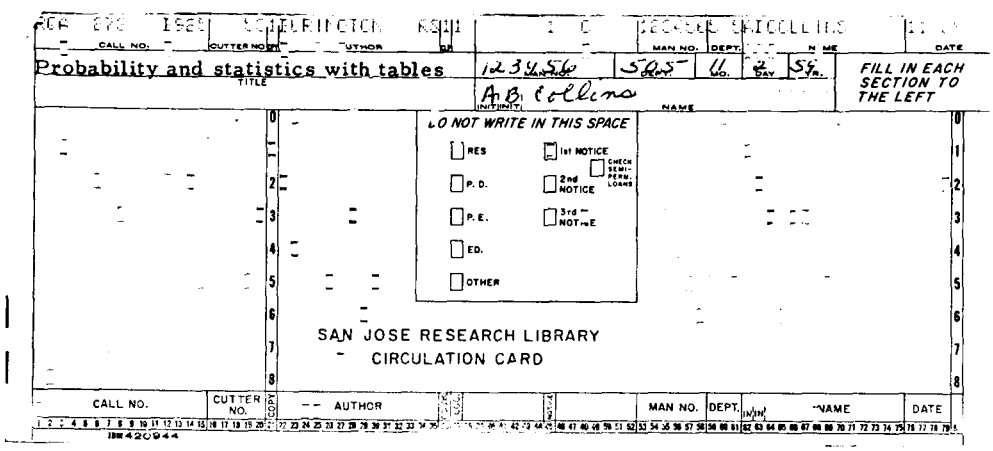


Figure 1—San Jose Research Library Circulation Card

They were first used in the 1930's when Harvard installed a system employing marginal punched cards and the University of Texas changed to a system using internally punched cards. Since then several medium-sized and larger public libraries have adopted modifications of the fully automatic punched card circulation system first installed at the Montclair (N. J.) Public Library. Several of the larger university libraries have installed the "punched call card" circulation system. Both these systems make it possible to obtain book, time and borrower information from the circulation file with ease.

The literature on the use of punched cards in libraries includes several references to circulation systems,[4, 5, 6] but none describe the use of punched card circulation systems specifically in special libraries, so I would like to describe three such systems now used in special libraries. Two of the libraries are IBM libraries, and I would like to thank Marjorie Griffin of IBM Advanced Systems Development and Research Library, San Jose, California, and Elizabeth Brown, IBM Research Library, Yorktown Heights, New York, for furnishing descriptions of their circulation systems. The third system was developed at Sandia Corporation Library.

Although the IBM library circulation systems were developed independently, they are basically the same. Both use a punched book card with the book number, author and title punched in or printed on the card. When a book is borrowed, the borrower writes on the card his name, employee number, location and the date. This information is then punched into the card, and at the same time a duplicate card is made with only the book information punched into it. Both cards are filed until the book is returned. Cards are filed into the circulation file by book number or author so that it is easy to determine where a book is or when it is due. When it is returned, both cards are pulled from the file, the charge card is discarded or placed in an inactive file, and the duplicate book card is placed in the book so that the book is ready to be charged out again.

Overdue procedures are simplified by the punched card file. The file is sorted by the date material was lent, cards representing

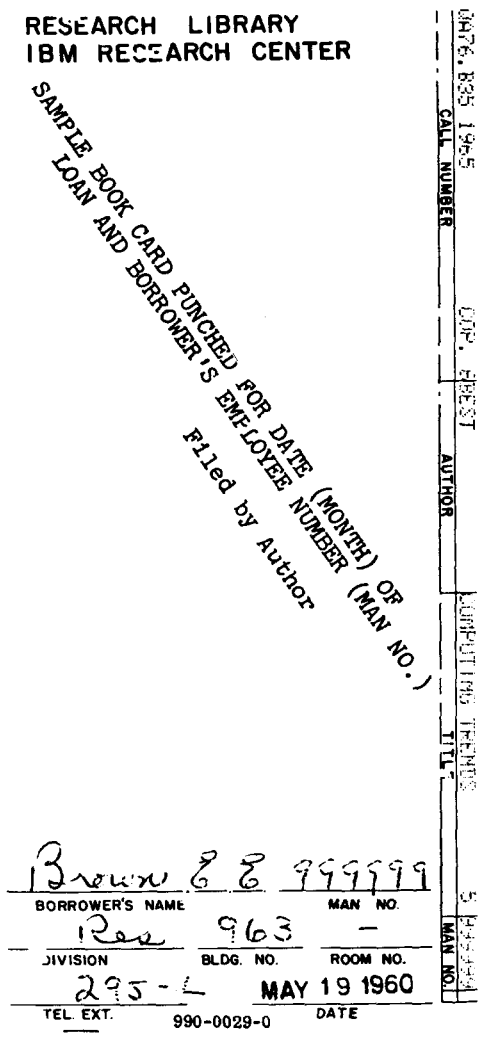


Figure 2—IBM Research Center Library Book Card

material that is overdue are pulled from the file, and the necessary information is transferred to an overdue notice by machine.

Similarly, cards representing the holdings of a particular borrower can be sorted from the circulation file by the borrower's employee number and then a list of his holdings can be printed from the cards. These lists of holdings are valuable for a borrower to check what he has and for the library if a borrower is terminating his employment.

The differences between the two IBM library circulation systems are slight but illustrate what adaptations can be made to suit

local conditions. At the San Jose library, the title is typed on the circulation card before it is placed in the book (see Figure 1). At the same time the circulation card is made, a master card is punched with the complete book information including the title. This master card is then used to furnish the title at the time overdue notices are printed.

The IBM library at Yorktown Heights duplicates the circulation card entirely to make a file by employee number (see Figure 2). This file is the one that is processed by machine to make overdue notices or a list of holdings by borrower. Thus the circulation file is always at the circulation desk available for use. The Yorktown Heights library does not punch the borrower's name into the card but uses his employee number to place the name on an overdue notice.

At Sandia Corporation Library the circulation system has developed along slightly different lines. We had been using marginal punched cards with the date due and the borrower's initials punched into the card. However, we found that it was taking too long to needle through the circulation file by date for the overdues and then type the notices. Also, needling the file by initials to obtain a list of one borrower's holdings was a very tedious process.

The system used at Sandia Corporation makes use of two files as does IBM Yorktown, but the file at the circulation desk consists of traditional 3 x 5 inch cards. These "call cards" are filled out entirely by the borrower at the circulation desk at the time of a loan. At the end of the day each card is given a transaction number and coded for type of material and location, if a branch loan (see Figure 3). Then the circulation cards are sent to the key punch organization where all the pertinent information is transferred to punch cards. The punched cards are filed in our machine processing section, first by employee number and second by transaction number. The circulation cards are returned to the library and filed by call number.

Discharges are accomplished by pulling the circulation card from the file when material is returned. A punched card is made from the circulation card using only the employee number and the transaction number. This punched discharge card is then matched against the punched card file and the corresponding punched charge card is dropped out. Overdues and lists of borrowers' holdings are processed entirely by machine. To process overdues, the punched card file is searched by date, and cards for overdue material are dropped out. The necessary information is then reproduced on a punched card overdue form, which is put in the mail addressed to the borrower (see Figure 4). Lists of borrowers' holdings are compiled by searching the punched card file by employee number; information from the punched cards can then be printed by a tabulator.

A valuable by-product of this system is the statistics that are available. Any time we wish, we can obtain a list of all the materials on loan, arranged according to borrower, organization, type of material, location or subject. We could obtain this sort of information over a period of time if we saved the punched cards instead of discarding them.

CALL NUMBER
Z 715
P5

LIBRARY
CIRCULATION
CARD

SC 1078- EW (8-58)

LT 1 | LOC. A

DATE DUE
DEC 1 1959

AUTHOR Parker

TITLE
Library Applications
of Punched Cards

E NO. 7289 | TRANS. NO. 53406

NAME W H. Richardson

ORG. 3421-1 EXT. 29138

Figure 3—Sandia Library Circulation Card

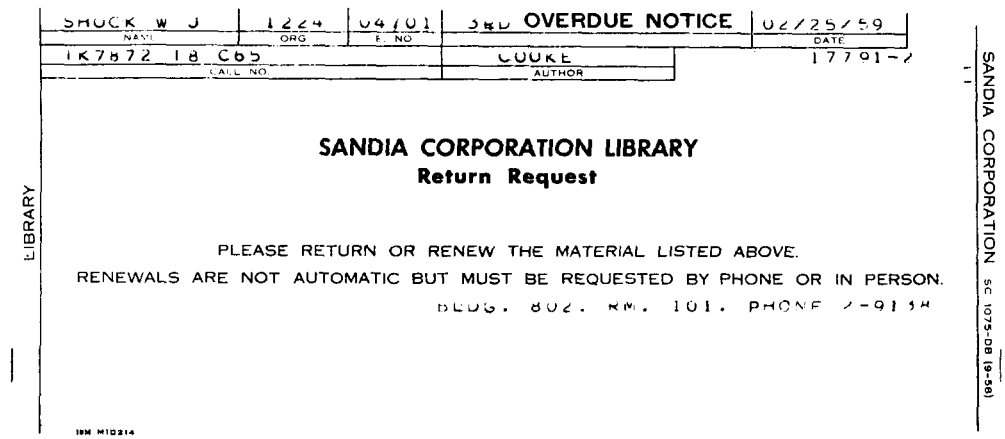


Figure 4—Sandia Corporation Library Overdue Notice

The obvious advantages of these punched card circulation systems are the manual operations that are eliminated. Machines can perform the routine tasks of searching through a card file for certain cards and copying information from them much more quickly and accurately than human beings can. At Sandia Corporation, for example, the total amount of time spent on circulation processes, both by the library staff and the machine operators, is approximately the same as that formerly spent by the library staff alone. However, we are now processing four times as many overdue notices and twice as many borrowers' lists as we did before.

In addition to ease of handling overdues and borrowers' lists, these punched card circulation systems offer one advantage to special libraries that is of particular importance. The loan record is all in one file and can be arranged either by call number or by author. Therefore, it is possible to tell at any time if a particular item is charged out, when it is due and where it is. This characteristic, I think, fits in well with the tradition of service offered by special libraries.

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Printed Book Catalogs

MARJORIE GRIFFIN, Librarian, Advanced Systems Development Division
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LIBRARIANS TODAY face a challenge. They must publicize the increasing mass of literature flowing into their libraries. Some librarians are accepting this challenge by departing radically from conventional procedures. Paradoxically, necessity is leading them to revert to a practice used first in France in 1643—the compilation of the book catalog.

With the passage of time, librarians replaced hand copying with the typewriter, and today the typewriter is being replaced with

Copies of the complete text are available from the author upon request.

electronic machines for the compilation of book catalogs. They may be of many different types—some loose-leaf, some bound—but all forms are basically listings of library holdings, arranged in various sequences and providing a diversity of bibliographic data. These catalogs may be printed by many different methods, including punch card techniques and a punched paper tape and photographic process.

Regardless of method of printing or format, a book catalog has many advantages not common to the standard card catalog:

1. Compact, thus a space-saver.
2. Easy to use, because borrowers are accustomed to using dictionaries and directories.
3. Quick to use.
4. Available information can be seen at a glance.
5. Saves librarian's time: no typing of repetitive data, no filing of duplicate cards.
6. Multiple copies can be prepared easily by machine; distribution is economical in time and cost.
7. General distribution results in greater use of the library holdings.
8. Subject bibliographies can be tabulated readily.

The flexibility of a machine-produced book catalog gives a librarian leeway to design a tailor-made system to meet his particular needs. After recognizing the unique features of a book catalog, the librarian must analyze the primary functions of the catalog in the library:

1. Is it a finding list, i.e., a printed guide to locating a book in the library resources by author, title or subject?
2. Is it expected to give complete details regarding publisher, date, additions and annotations?
3. Is it to be used chiefly in a library or at every office desk or in the work room for the convenience of a cataloger?
4. Is it to be a master catalog to replace the card catalog, or will the card catalog still be the source of the full data?
5. Must the author entry be complete or will initial suffice?
6. Will abbreviated titles be acceptable, permitting a one line entry and thus keeping the catalog small and the machine work faster and simpler?
7. Will the processing be done in a central unit or will each unit forward its information to one library?

The answers to these questions define the objectives and determine the function of a printed book catalog. It is only after specific objectives have been outlined that a catalog can be developed for the operations and services of a specific library. . . .

Two pioneer libraries in simple machine experimentation warrant mention. King County Public Library System in Washington produced in 1951 its first loose-leaf, printed book catalog as an expedient way of circumventing the county problem of changing branch catalogs every month. . . . The Los Angeles County Library started in 1952 a system for distributing a master book catalog of all the county library books to every branch. . . .

The following systems progress from the simple in procedures and machine installation to the complex, from the unsophisticated to the sophisticated. All are relatively recent and consequently subject to the modification that is a part of every experimental period.

The U.S. Naval Postgraduate School at Monterey, California successfully prints its current list of periodicals on a Flexowriter. . . . The Cardiovascular Literature Project of the National Academy of Sciences uses the Listomatic camera, a photo-composing machine that photographs listings from typed IBM cards and produces a continuous roll of negatives at a reduction of about 40 per cent. . . . The New York State Library issued in 1956 a machine-produced *Checklist in the Social Sciences.*

The foregoing are examples of relatively simple systems performing adequately the purposes for which they were installed. More sophisticated systems using more machines and giving more information, utilize the IBM 026 keypunch, IBM 056 verifier, the IBM 083 sorter, IBM 089 collator and IBM 407 tabulator. The following special library systems differ in their objectives and, consequently, in their resultant catalogs.

The National Reactor Testing Station Technical Library near Idaho Falls has a master list of periodicals for six libraries with entry checked according to the Union List of Serials. . . . This same library is also presently developing an IBM punched card printed book catalog. The Long Island Lighting Company of Hicksville, New York, has devised an informative catalog for notifying personnel in any company location of the holdings in the library at the company headquarters. . . .

The Monsanto Union Catalog is a checklist of books in ten libraries compiled simply for the purpose of identifying a title and its location. Each library catalogs its own books; each library submits an IBM keypunch data sheet, with title, author and date indicated in the appropriate spaces, to the processing library. . . .

IBM in San Jose has developed a master catalog of books for four libraries on the plant site. Since each library belongs to an autonomous division, each librarian does her own ordering and cataloging. However, the spirit of cooperation is strong, and each librarian submits her shelf list cards for new titles each month to the oldest library, the Advanced Systems and Research Library, for processing. Author, title and subject catalogs are printed each month. . . .

The recognition of the merits of mechanization in producing "finding lists" has recently brought large-scale computers into use for compiling these guides. Librarians using ASTIA are grateful for the more current announcements of the reports which have appeared since ASTIA undertook the prodigious task of mechanization. Currently reports are listed in *Technical Abstract Bulletin* 60 days after receipt, and the aim is to reduce the delay to 25 days. Since April 1, 1960, the Remington Rand Synchrotape typewriter has been used at ASTIA to type document abstracts, and the Univac Solid State Computer 90 has been used to arrange the material automatically into the format in which it is published. . . .

Chemical Abstracts has issued its first *Chemical Titles,* a permutation index of 3000 titles in current chemical journals.

We can project our thinking from these increasingly sophisticated systems to tomorrow, when inevitably, there will be greater standardization of information processing in major regional or national centers; when all documents will be initially recorded in machineable form; and when the very flexibility of machine systems will simplify the transfer of information.

The applications mentioned are proof that there are ways of eliminating the repetitive tasks of cataloging, that there are ways of reducing the manual filing of cards, and that the printed book catalog, with its primary purpose to make materials readily accessible, by its compactness, its ease and speed in use, and economy in time and cost for reproducing multiple copies and facility in the specific author and subject bibliographies, is a partial answer to the perpetual library responsibility for the dissemination of information.

SOME LIBRARIES USING PRINTED BOOK CATALOGS

Armed Services Technical Information Services
Arlington Hall Station
Arlington 12, Virginia

Columbia River Regional Library
124 Benton Street
Wenatchee, Washington

IBM Advanced Systems and Research Library
Monterey and Cottle Roads
San Jose 14, California

King County Public Library
1100 East Union
Seattle 22, Washington

Lake County Public Library
1050 Ridge Road
Munster, Indiana

Library of Congress
Serials Division
Washington, D. C.

Long Island Lighting Company
175 Old Country Road
Hicksville, New York

Los Angeles County Library
322 South Broadway
Los Angeles 53, California

Massachusetts Institute of Technology Libraries
Cambridge 39, Massachusetts

Monsanto Chemical Company
Organic Research Library
1700 South Second Street
St. Louis 4, Missouri

National Academy of Sciences
Division of Medical Sciences
Cardiovascular Literature Project
Washington, D. C.

National Reactor Testing Station Technical Library
Phillips Petroleum Company
Idaho Falls, Idaho

New York Public Library
Fifth Avenue
New York, New York

New York State Library
The University of the State of New York
Albany, New York

Southern Illinois University Library
Carbondale, Illinois

Squibb Institute for Medical Research
New Brunswick, New Jersey

United States Naval Postgraduate School Library
Monterey, California

University of Wisconsin Library School
Madison, Wisconsin

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Control and Inventory of Classified Documents

CHRIS G. STEVENSON, Manager, Technical Information
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IN CONSIDERING the application of machines to the management and control of classified documents, I should like to discuss *1)* some general principles relating to the use of machines for classified document control; *2)* some general criteria for deciding whether or not to use machines for this purpose and *3)* three systems in current use. It should be understood clearly that the details are extremely important. The card design, the logic and strategy of the program and the underlying procedures and systems work are critically important to a successful program. These details must be obtained by direct contact with the people who operate these systems.

Machines have proven themselves tremendously useful in the management and control of classified documents. In fact, they are almost indispensable if one has responsibility for a large classified collection.

This is particularly true, if one has any need to analyze and report classified document activity. As those with any experience in the matter know, a large document collection is in a continuous state of flux. New documents are being added to the collection; obsolete or surplus copies are being de-

Paper was read by Peter Stromer. Copies of the complete text are available from the author as long as the supply lasts.

or circulated within plant; copies are being stroyed; documents are being mailed off-site declassified, upgraded or revised. It is a tremendous task to keep accurate track of all these transactions, and accuracy is critically important to the security control of classified documents. Machines can provide invaluable assistance in this task. Furthermore, only machines enable one to analyze this maze of activity at any particular time. . . .

One can conclude that many types of machine equipment can be used for classified document control. Two techniques in common use are:

1. Document holdings are recorded on magnetic tape. When there is activity relating to a document—copies needed, copies being transferred from one custodian to another, copies being destroyed—this information is transmitted to the machine. The magnetic tape is updated through incorporation of this information. The sorting, sequencing, revising and statistical summarizing is all done within the computer.
2. Document holdings are recorded on punch cards, which are manipulated using standard punch-card handling equipment. Changes are made by key-punching additional information into the existing cards or by adding or deleting cards from the file. To the extent that it is practical, file maintenance is done by machines.

The taking of the document inventory is accomplished in one of two ways. An inventory list may be printed out from the magnetic tape or from the punch cards and the document custodian must account for the documents for which he is charged. In the other case, cards on which the document description is punched are pocketed with the document. These cards are withdrawn at inventory time and sent to a central accountability group where they are matched against the master card deck.

Some general criteria for deciding whether or not to use machines for classified document accountability are:

1. Available equipment.
2. Size and activity of the collection.
3. Extent of visual referral required for daily office operation.
4. Staff problems: machine systems are complicated, and the staff must be ready to learn new techniques and accept new concepts.
5. Cost.

Three systems in current use, each illustrating different approaches to document control, are:

1. Aircraft Nuclear Propelsion Department, General Electric Company, Cincinnati, Ohio.
2. General Electric Company, Hanford Atomic Products Operation, Richland, Washington.
3. USAEC Technical Information Service Extension, Oak Ridge, Tennessee.

The foregoing three papers were presented at the General Session, June 7, 1960, sponsored by the Documentation and Science-Technology Divisions, at the 51st Annual SLA Convention in Cleveland, Ohio.

Presenting information on the application of machine methods in library practices frequently poses a dilemma for a speaker or author. What approach shall he take? Many special librarians are still unfamilar with even the most rudimentary aspects of punch card operations, and fear of the unknown usually foments rejection. On the other hand scores of librarians, particularly those involved in the scientific disciplines, are well oriented to machine application parlance, read avidly on the subject, experiment when they can and are always open for discussion of new developments. How can both of these groups be satisfied by *Special Libraries* when very excellent technical papers on the subject are available for publication? Of three possible paths open, only one seems to impart a sense of balance to the situation. This is to present first a few papers in complete text, particularly when a novel approach to machine usage is suggested and a discussion of the machines themselves is apropos, and then, in conjunction with these, present extensive extracts of papers demonstrating direct, practical use of machines that have many times over been described in earlier literature.

Such an approach has been used in this particular issue of *Special Libraries*. In the preceding two articles, none of the vital data or know-how of the actual application has been deleted. It is hoped that the screening process which resulted in these *extracts* (not abstracts) will give all librarians a clear insight into the many extremely practical applications possible in the machine field without the technical jargon that is so awesome to one group and so tiring to another.

Special Libraries COMMITTEE

Proposed Standards for Newspaper Libraries

Newspaper Division's Committee for Study of Daily Newspaper's Library Standards
Jack Burness, Washington Post, Chairman
Clement Vitek, Baltimore Sunpapers, and Milton Prensky, Washington Evening Star

THE ROUTINES of newspaper library work should be distributed in such a fashion that no one is bogged down with full-time chores of a distasteful nature. There is certainly enough diversity of duties in a library and its various related phases to maintain a constant level of interest for most employees. Any acceptable standards must be drawn up with this in mind.

Throughout this Committee's meetings, it became apparent that the most important topics concerned matters of personnel. This became even clearer as the definition of this Committee's work area was discussed.

It is particularly important to keep clear the distinction of *standards* as opposed to *standardization* in daily newspaper libraries. The conforming of all libraries to certain set rules would not be considered proper. Rather a maximum goal, by whatever methods deemed best by the particular newspaper, should be considered. A minimum goal should be set, below which no library should fall.

It must be kept in mind that because newspapers by their very nature are highly individualistic, there will be differences in the standards set by a particular organization. However, maintaining the lower level standards should be discouraged by continually raising both minimum and maximum standards.

Since a measurable standard must be static to be used as an instrument for checking against, it is this Committee's suggestion that the continual change in newspaper library science must be refinements within the measure rather than the changing of the standard.

Report presented before the Newspaper Division, June 6, 1960, at the 51st SLA Convention in Cleveland, Ohio.

This Committee further realizes the difficulties of attaining adequate budgets for meeting these necessary standards. In this respect it was interesting to read the views of J. R. Wiggins, Executive Editor of the *Washington Post* and immediate Past-President of the American Society of Newspaper Editors, in a speech made in October 1959, to the Pennsylvania Newspaper Publishers' Association in Pittsburgh.

Mr. Wiggins said: "There is another point on which I wish the press would move in the '60s, but I have very little hope that it will move. I refer now to the improvement of our facilities for research and reference. News and editorial departments of newspapers have taken singularly little advantage of the revolutions in the methods of acquiring, classifying and coordinating information. Business offices have shown infinitely greater enterprise than we have. Our libraries, for the most part, operate just the way they did 50 years ago. Oh, to be sure, we have microfilm and film clips and the Thermofax and other copying devices, but these are essentially just patches upon an antiquated and outworn system for filing and codifying information. It is almost astonishing that a business that has prided itself upon the traditional speed and accuracy with which it operates should put up with devices and methods as outworn as the quill pen when it comes to sorting information to which it has almost daily resort.

"I am afraid we labor under several disabilities here. Libraries, unfortunately, do not generally cost enough to offer a spectacular opportunity for the reduction of expense. So there is not the inducement of economy to introduce new and revolutionary methods. The real costs of the library, of course, are not incurred in the library at all,

but in the hours spent by personnel at infinitely higher salaries than those of librarians in searching for material which ought to be provided in an instant instead of after a laborious search. But because revolutionary methods in the library cannot directly make money or directly save a great deal of money, we are probably going to have to be very patient in awaiting the revolution we would like to see in this area."

It is the feeling of this Committee that the Special Libraries Association Newspaper Division, as a group, has never in the past properly approached *all* publishers to let them know that certain standards must be met in their *libraries* before their newspapers can be considered first-class. Since heretofore there have been no recognized standards, these standards, once set up, should be widely disseminated. The newspaper library group should, through its officers or by a committee set up for this purpose, circulate to publishers the approved standards of library operations.

In view of the above general discussion, the Committee feels that any standards to be studied should follow a seven-point outline.

Administration

Every newspaper that is a good newspaper should have a good library, and its administration should have the support of a management which understands the vital necessity for accurate, quickly found information which can be obtained *nowhere else.* It is the opinion of this Committee that since a newspaper library is primarily a part of the news and editorial sections of any newspaper (though it is the obligation of the administrator of the library to work closely with all department heads), the librarian should be *directly* responsible to the *single individual* who holds the highest title in the news and editorial departments.

Reference Material

Newspaper libraries, being the *special* libraries they are, require general reference materials adaptable for special uses. However, these materials are in many instances of a broad general nature that pertain to many other special libraries. If the Special Libraries Association should publish a standard list of books for general reference, it might serve for newspaper use. At present, however, most large public libraries publish and sell general reference lists. One such publication is available from the Enoch Pratt Free Library of Baltimore, Maryland, at a nominal fee. The primary file of any newspaper library is the clipping collection. The extent of clipping files, as well as the files of photographs, maps and other materials, hinges on the particular needs of the newspaper.

Personnel

This Committee recognizes that personnel standards are irrevocably related to salaries and titles. Therefore it is first necessary to label properly library personnel and to avoid lumping library clerical assistants with all other clerks in the organization. These people are *1)* called on for reference material from their own libraries; *2)* called on for accurate information from other sources; and *3)* called on to do research on their own responsibilities; therefore categories of positions and standards of personnel, such as these tentative classifications, should be set up:

CLASSIFIER RESEARCHER—This would be the person who files, sets up new files and answers questions on the floor.

CLASSIFIER RESEARCHER TRAINEE—This would be lowest level of staff.

INDEXERS—Those who actually read and catalog newspapers and have the main responsibility for the bulk of proper classification.

ASSISTANT LIBRARIAN—One who can do any of the above and takes over administrative details from Chief Librarian.

CHIEF LIBRARIAN—This is a well-versed individual who is capable of any of the functions of his department but whose main responsibility lies in over-all administration —hiring and firing, planning and liaison.

These classifications would, it is felt, change what is considered by this Committee to be a feeling of snobbery on the part of reporters toward library personnel and cause a psychological change for the better within library staffs.

The training and time spent in preparation by professional librarians are not recognized by management in most newspaper libraries. Since libraries need better, more intelligent personnel on their staffs, higher salaries must be paid. Therefore salary standards must be set up. A good beginning can be made by using as a base the salaries set up by the Federal Government for librarians and the more realistic Newspaper Guild scales. Recent Guild publications printed the scales of large newspapers.

Personnel must be paid for experience, and no chief librarian should be paid less than the highest minimum for working reporters set up by the guilds on different newspapers. In no case should the salary be less than twice as much as the beginning rate for the lowest library classification, which should be no less than $75 per week on large daily newspapers.

Because it is of concern both to the library profession and publishers and would directly justify salaries, it is recommended that the profession have qualification standards. Since these cover a wide field, concerning both training and education, and need to be studied within existing libraries, it is suggested that a separate committee study qualifications. This Committee further recommends that the Newspaper Division request from each member a list of job titles and pay scales as a basis of discussion and for comparison with federal scales and Guild scales.

Organization and Control of Materials

Newspaper libraries, because of daily deadlines, should have the entire organization and control of materials designed for speedy use. The more direct the classification of materials, the better service can be given.

This Committee recommends strongly the copious use of direct cross references. A practical manual of library operation *must* be set up. More is needed than Desmond's[1] and Friedman's[2] books on the subject. A manual will serve both as a guide and a check on standards. This Committee recommends that an actual start be made on such a manual—not by only a committee of already-busy newspaper librarians, but by hiring a professional so that the work can come to fruition. The acquisition of funds should be studied with the thought in mind that some foundation may be willing to assist in such a project. It is felt that the sooner some printed guide of *actual* materials and their use is available, the sooner *any standards* will be met.

The Committee on Standards recommends that the officers of the Newspaper Division, or an appointed committee, investigate particularly the possibility of acquiring funds from the Council on Library Resources, Inc. The best approach to the Council would be to state that all material now in the possession of the Newspaper Division concerning a manual for newspaper library operation would be turned over to a person who would be paid for completing the project. Also, it is important that a budget figure be presented to the Council, giving an idea of the total cost of producing a manual.

Physical Facilities

Libraries should be located as close to news and editorial operations as possible, both for maximum use by newspaper staffs and for ease of operation for the library staff. In addition to supplies and equipment necessary to arrange materials properly, the library should provide ample facilities of space and comfort for employees of the library.

Microfilming of newspapers has broadened into the microfilming of clippings and the use of the newest innovations in copying machines. It is highly recommended that all equipment of the library, such as filing cabinets and magazine racks, be of the best quality as the most practical, economical and useful.

It is notorious how short-sighted space planning has been in the past. The Committee recommends that in any change of library space, thought should be given to long-range considerations for future expansion.

Hours of Operation

The operating hours of any library are controlled by established publishing practices. These are determined by how many

editions are published and how often, whether or not it is a morning operation only, an evening operation only or both morning and evening, and if it also publishes a Sunday paper. This could further be complicated if the library also serves radio and/or television stations.

It may not be necessary for the library to be open during the complete cycle of publishing hours, but there should be sufficient staff to cover the proper hours. This is recommended primarily so that responsible *library* personnel *controls* the library and not *other* departmental staffs.

Service

Any newspaper library is set up primarily to assist the news and editorial staffs. If it is to serve other departments within the paper and also serve the public, ample personnel must be provided. The practice today is to limit personnel and thrust more duties on them. The most practical standard would be for management to provide enough staff flexibility so that research projects for newspaper personnel will not interfere with routine work required in the library. If this means overtime or hiring temporary personnel, it should be done.

The relations of the library with the public and whether or not information is given personally by telephone, immediately or on a "call-back" level, or written; whether clips or reproductions are to be sold, or whether general information other than in the newspaper is to be given, are too complicated for this Committee to explore at this time.

Conclusions

It is recommended:

1. That separate committees be set up to study various steps or combinations of those steps recommended by this committee.
2. That the finer points of all collections be studied more minutely for over-all scope.
3. That a continuing committee should be limited to studying constantly mechanical operations which can be adapted to newspaper libraries.
4. That this Committee's report should be considered a precedent for the establishment of a permanent committee on standards so that standards should always be subject to improvement in keeping with changing conditions.

CITATIONS

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2. FRIEDMAN, Harry A. *Newspaper Indexing.* Milwaukee: Marquette University Press, 1942, 261 p.

Another Plea For Standards

A high-ranking Air Force officer, addressing a meeting of Air Force librarians the other day, compared the importance of these men and women in his service to that of the missiles themselves.

I have heard few statements lately, which mark the rocket-like rise of our profession in significance to the organizations we serve, so strikingly. For could there now be in existence an enterprise or agency with a sizable research or development activity without competent special library services, be it called technical information, documentation, management services, or what have you? Indeed, I believe, that the lack of a properly organized, exhaustive and all-encompassing technical information service did more harm to the technological effort of our country, than all other retarding factors combined.

However—I ask you—has this new and increasing emphasis on special librarianship found its full expression in an equally striking change in the professional standing of the individual librarian? I am afraid that this has not always been the case.

Other professions have found themselves in this situation and have achieved increased recognition and, yes, also better material rewards through their professional organization. And this is what SLA is trying to do, through a rise in our own professional standards, by advancing the state of the art, by acting as our spokesman and in many other ways. And that is why I am asking you to give your full support to your professional organization on the national and on the local level. LESLIE RAJKAY, President

(Reprinted from *News and Notes,* Baltimore Chapter bulletin, October 1959, vol. 10, no. 1)

Planning the New Library:
Madison G. Nicholson Memorial Library

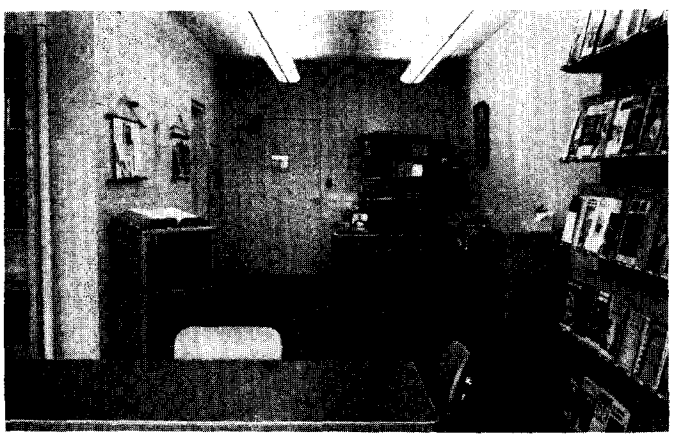
MRS. MARIAN S. VEATH, Librarian
Sylvania Electronic Systems, Buffalo, New York

THE LETTER "C" seems to initial a myriad of words applicable to the past, present and future of the Madison G. Nicholson Memorial Library, Sylvania Electric Products, Buffalo, New York. Perhaps the most prominent ones are—competition, compromise, collection, cataloging, circulation and cooperation. For the structure of this article, these will be key words. Others, such as contacts, creativity, change and choice, will appear throughout and are significant of the laboratory's and library's mission—that of communication. This will not be a complete description of the development of the library but stresses highlights and unusual activities.

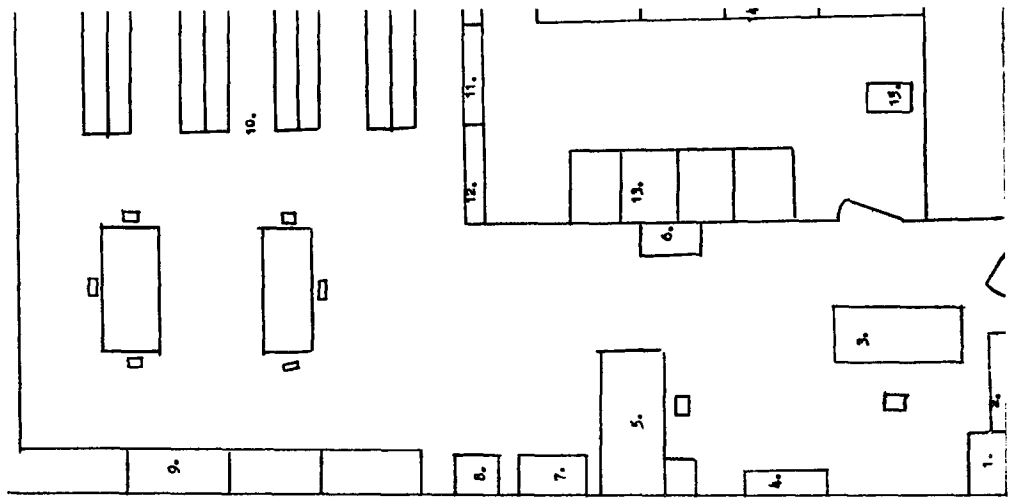
Competition: Competition took the form of challenge in the minds of those who planned and organized this new laboratory, which was dedicated in May 1958. With new facilities, new personnel and a new concept of research in electronic systems, and with the rapid advances in technology, these people were challenged to utilize all these elements in the development and production of electronic devices, at the present only figments of imagination. To meet this challenge, the need was felt for a source of information right under its own roof. A room had been designated as "Library" and contained approximately 150 books and 40 periodicals. A secretary, one floor below, functioned as librarian.

Compromise: Here compromise entered with the realization that a completely equipped library could not come into existence over night. A start could be made, however, by hiring a full-time librarian. This was done in November 1958. Immediately the research men felt an oasis had been established and unloaded their burdens in the form of requests for literature. I was delighted in the intense interest shown in the library. However, we all had to compromise because of limited facilities, materials and staff. An adequate budget was allotted for furniture and for the initial buying of books. Despite this generosity, value in quality was sought.

Collection: Before I joined the company, a list of approximately 700 books had been compiled by the personnel, and these were recommended as a good working collection. A portion of this list was ordered each of the following months from a wholesale book dealer and a few publishers not served by the dealer. It was just like Christmas every day when the books began to arrive. Before the library stamp had time to dry, some were borrowed with the statement, "This is just



The work area of the librarian and her clerk, close to the card catalog, dictionary and periodical rack.



Floor Plan: The library covers 300 square feet

what I've been needing." Only a few shelves were available for these new acquisitions, so cardboard boxes were used to show off our proud possessions. At the same time, previously purchased books were collected from various people who willingly surrendered them, knowing that they could be borrowed any time they were needed.

The growth of the collection has been mainly based upon suggestions and expressions of subject interest from the research men because they are familiar with their particular work situations and needs. Each request is analyzed and compared with what we have. This does one of two things: it introduces the requester to existing books in the library on the same subject, or it gives a recommendation for a book on a subject in which we are short.

The saying, "The backbone of the library is its book collection," is true for historical purposes, but in a fast moving industry such as ours, documents and periodicals provide the immediate answer to the "state of the art (science)." Thanks to ASTIA, our collection of various reports has increased economically and rapidly. Being placed on the mailing lists of several companies and automatically receiving reports on particular subjects of interest has also enhanced our collection with valuable information. Assistance and loans from the area libraries have increased our sources and have provided references when urgently needed. A growing list of sources of information, contacts and "who has what" data has also enabled our collection to grow.

Cataloging: As the night follows the day, cataloging follows collection. Library of Congress nomenclature was selected for books. An adaptation of ASTIA's division and section numbering system was devised for documents. Clippings and file folder materials were numbered according to a subject cataloging system previously introduced as a laboratory standard.

Circulation: Our philosophy has been that we want a fine collection of active materials and not just between-book-ends on the library shelves. Therefore, circulation becomes one of the most important functions of this library. A library bulletin—a simple title listing with a few library notes—is distributed to each department. "Mr. Short Circuit" is the library motif, and we've adopted the slogan, "Shortest circuit to information—your library." Notification and waiting list slips were created as well as other forms to fit circulation information needs. Fields-of-interest registers are used to ascertain personal interests so that incoming literature can be properly distributed. A system for obtaining books at a discount and for ordering government publications was established.

We have had:

consternation—Arrival of 35 classified documents and 50 unclassified documents at one time.

The study area for library users is near the window and book and periodical stacks.

compliments—"Thanks for the bibliography and information."

chit chat—Visits by other librarians and laboratory visitors.

complaints—"Too long a time required in obtaining reports."

color added—Pistachio green walls, darker green tiled floor, gray furniture and bright yellow accent.

character—A handsome charcoal portrait of our namesake skillfully done by his wife and given the library at its delication.

charm—A planter made from the box which housed the electronic controls used to unveil the dedication plaque.

Yes, all of these "C's" have taken part in the making of our communication center. But perhaps the most important word beginning with C is **Cooperation.** Cooperation has been felt in every phase of the library's development—cooperation of the staff, increased by a clerk in February 1960, of the various outside companies and library contracts, of Sylvania's administration in its attitude toward library activities and of all the users in their consideration, confidence and congenial attitudes.

No matter how much planning one does, it seems that a technical company library grows like Topsy—materials are obtained and services are established to fit the need of that particular situation.

To compete for the challenge of the future, not to compromise but create, to have a quality collection, to adopt new cataloging systems for information retrieval, to circulate materials in a form most readily usable and to coordinate and obtain cooperation of all elements—these are the goals of our Communication Center.

VITAL STATISTICS FOR MADISON G. NICHOLSON MEMORIAL LIBRARY

Total square foot area		300
Staff:		2
Professional	1	
Nonprofessional	1	
Employees served at location		800
Services extended to other areas		1
Average number of users per day		30
Books and bound periodicals as of September 1960		1,000
Current periodical subscriptions		75
Vertical file drawers		4
Date of dedication		November 14, 1959
Special facilities		microfilm reader

The SLA Loan Collection— An Important Professional Service

AMONG THE MANY problems faced by special librarians is one that is ever present and probably never solved with complete satisfaction. This is the analysis of special subject matter so that the library's holdings can be organized and controlled to best advantage. Subject analysis may take the form of classification, indexes and subject headings and categorization of various types—with classification being probably the most effective and most widely used. For many years substantial help in this direction has been provided by Special Libraries Association to its members and nonmembers through the SLA Loan Collection of Classification Schemes and Subject Heading Lists.

To be most effective, this service needs to be better known. Also, the Collection needs to be constantly replenished and restocked if it is to provide the latest and best information in the many fields represented by SLA's wide membership. Essentially the Loan Collection is a "share-the-wealth" program. The system you are using in your library may not be the best, but it may be just what the doctor ordered for another librarian who is struggling to develop his own system or to make extensive adaptations to something that is not entirely appropriate or is merely getting along without any special arrangement.

What the Collection Is and Does

The Collection now contains nearly 800 volumes, on deposit at the School of Library Science at Western Reserve University, Cleveland, Ohio, all carefully bound in SLA covers and indexed by both subject and author. Inquiries may be directed to the Collection by SLA members and nonmembers alike. Such inquiries are generally of two types—*1)* either a request for a specific classification scheme or subject heading list by title or *2)* a request for information as to what is available in a particular subject area. The first type of inquiry is satisfied by either a four-week loan of the original material or by a photocopy or microfilm (at cost) for permanent retention. In replying to the second type of inquiry, catalog "clips" are sent describing the material available in the desired subject area.

An efficient charge-out system has been established under the direction of Dr. Jesse H. Shera, Dean of the Library School and Curator of the Collection. The very large job of maintaining the materials and records and servicing inquiries is capably handled by Barbara Denison, Research Associate at the Western Reserve Library School and Assistant Curator of the Collection. The contributions of the University to the project in time, labor, effort and money simply cannot be overestimated. Some indication of the size of the job can be had from the statistics, which show that 10 to 15 inquiries are handled each week.

Another service is the publication by SLA of the list of holdings in the Collection. The most recent edition of this list was a 52-page, 8½ x 11 book published in 1959.* This edition is now exhausted; it contained 578 schemes and lists, which will probably be augmented by some 200 to 250 additional items in the new edition now in preparation.

Historical Background

The Collection has been in existence for more than 35 years, having been established in 1924. The first list of classifications and subject heading lists on deposit at SLA Headquarters was compiled by Isabel L. Towner and issued in mimeographed form in 1945. A supplement was issued in 1948 and a third edition in 1951; the 1959 edition was the fourth and by far the most comprehensive.

In 1955 the Special Libraries Association arranged to have the Collection housed at

* *SLA Loan Collection of Classification Schemes and Subject Heading Lists—on Deposit at Western Reserve University as of November 1, 1958* 4th ed. Compiled by Bertha R. Barden and Barbara Denison. New York: Special Libraries Association, 1959, $2.50 (out-of-print).

the School of Library Science at Western Reserve University, and a complete reorganization and evaluation of the holdings of the Collection was undertaken under the direction of the SLA Special Classifications Committee.

The services of Bertha Barden, Professor Emeritus, School of Library Science, Western Reserve University, were secured for the initial work of reorganization. The alphabetical subject arrangement of the Collection was completely revised and expanded, and many obsolete schemes were discarded. New material was solicited by the Special Classifications Committee, which circulated an urgent request to all SLA members. This appeal resulted in the acquisition of approximately 100 new schemes and lists—a real "share-the-wealth" windfall. All the annotating, indexing and collating of new material, as well as the old, has been under the direction of Miss Barden.

Contributions and Cooperation

One of the primary functions of the Special Classifications Committee, since its establishment as a standing committee in 1952, has been the expansion of the Collection, the solicitation of new material and the promotion of the service. One project along this line has already been mentioned—the highly successful circularization by questionnaire of the entire SLA membership in 1957 to determine what types of subject controls were in use in various fields of interest and to solicit contributions of new schemes and lists. A follow-up letter to respondents to this questionnaire, who promised material in the future, was sent out in 1959 with gratifying results.

Other contributing and cooperating organizations and programs are as follows:

AMERICAN LIBRARY ASSOCIATION in 1957, through its Committee on Classification, sent questionnaires somewhat similar to the SLA's to a representative group of public libraries and college and university libraries; this brought more than 50 new schemes and lists into the Collection.

During 1959 the ALA Classification Committee also instituted a further program for publicizing the SLA Collection and soliciting additions. This was a cooperative project with the SLA committee wherein a mailing was made to primary journals in various subject fields asking them to insert a prepared news item concerning the Loan Collection. Publication of this notice in one journal alone, *Electronic Industries,* has resulted in 24 inquiries.

ASLIB in London cooperated by supplying a list of classification schemes and subject lists in the Aslib library that was checked against the SLA holdings. Several schemes from this list, not then included in the SLA holdings, were donated to the Collection.

UNESCO: A project to collect classification schemes was also instigated by Unesco in Paris, but on learning of the SLA project, the Unesco committee decided to abandon its program and donated the material it had already collected to SLA.

CLASSIFICATION RESEARCH STUDY GROUP: During 1959 the Classification Research Study Group established its Loan Collection to supplement the SLA holdings and is adding material on a continuing basis. These classifications consist largely of FID publications and UDC sections.

SOLICITATION OF PUBLISHERS: It should be noted that almost without exception volumes now contained in the Collection have been acquired by donation. The Committee is aware of a number of desirable additions, which are sold commercially, that could be made to the Collection if funds were available. A list of more than 100 of these has been prepared by Miss Barden in cooperation with Miss Denison. The Committee is currently sending letters to the publishers of these schemes and lists asking for free donations to this very worthwhile cause.

DIVISION EVALUATION AND ASSISTANCE: The last but by no means least important of the measures being taken to improve the Collection is a program for cooperation among the various SLA Divisions. During the past year each Division has appointed a representative to work with the Special Classifications Committee. A meeting of these representatives was held in Cleveland during the 1960 annual Convention, with a phenom-

enal representation at the meeting of 11 of the 16 Divisions. At one stroke at this meeting four of the volumes on the list of desirable missing items, together with two other new classifications, were contributed.

The Division representatives responded enthusiastically to this call for help. Their function will be to evaluate the material that now exists in the Collection in their Division subject fields and to augment the holdings by various means. Some of the ways in which these representatives will further the cause will be by direct mailings to their memberships, by announcement at Division business meetings and by publication of notices in Division bulletins.

Future Plans

When the fifth edition is published (early 1961), it is anticipated that the number of entries will be increased by some 30 to 35 per cent over the previous edition of 1959. All SLA members are urged to make contributions of their own and to solicit them wherever they are known to exist.

The Loan Collection is a splendid example of the kind of professional assistance SLA can render to its members and to librarianship. It is also a splendid example of the results of cooperative effort of which SLA and all of its members can well be proud.

MRS. MARJORIE R. HYSLOP
Chairman (1957-1961)
SLA Special Classifications Committee
Helen M. Focke (1960-1962)
Jean K. Taylor (1960-1962)
Mrs. Irene R. Campbell (1957-1961)
Frederica Weitlauf (1957-1961)
Agnes O. Hanson (1958-1960)
Dr. Jesse H. Shera (1958-1960)

Military Librarians Learn About ASTIA

THE FOURTH Military Librarians Workshop was held in Washington on October 5th, 6th and 7th under the sponsorship of The Armed Forces Technical Information Agency (ASTIA). One hundred and fifty military librarians from the United States and Canada attended the sessions and were welcomed by John F. Stearns, Deputy Director of ASTIA.

The first part of the program centered around the theme "Controlling Literature by Automation" and concerned ASTIA's operations. This agency, an activity of the Air Research and Development Command, was established by the Secretary of Defense for the purpose of bringing together in a central depository all scientific and technical reports produced by and for the national defense effort and to make this information available to military research and development agencies. In view of this mission, the recent conversion of ASTIA's services from a manual to an automatic operation has been a matter of great interest to military librarians. This Workshop provided an opportunity for them to learn about the agency's experiences in the development of an automatic data processing system and to observe this system in operation.

On October 5 tours of ASTIA were arranged for Workshop participants, and the automation equipment was explained and demonstrated. These tours provided background for the next session which consisted of presentations by a panel of ASTIA staff members. They described the experiences of the agency in automating its major functions and discussed some of the problems encountered in converting to automatic techniques. The major areas covered were: background planning—the formulation of objectives and their implementation; the selection, training and relocation of personnel; the human aspects in regard to personnel and customer relations; the impact on the organizational structure of the agency; file conversion, data cleanup and inventory control; development of an information retrieval system; and future plans for integrated data processing. The panel members answered questions and clarified points brought up by the librarians present.

The purpose of the Workshop session held on the morning of October 7 was to explore

Leaders of the Fourth Military Librarians Workshop (left to right): Logan O. Cowgill, Chief Librarian, Office of the Chief of Engineers; Frances L. Carey, Assistant Director of Libraries, Naval War College; J. Heston Heald, Chief, Document Processing Division, ASTIA; Robert L. Martin, Chief Librarian, Army Quartermaster Research and Engineering Center.

the problem of devising standards for personnel in military libraries. Papers by the panel members had been distributed to all participants prior to the Workshop. A background statement and suggestions for preliminary reading were also included. Thus, it was possible to begin discussion immediately after a general briefing.

The libraries represented varied greatly in regard to size and also in regard to services. The approach to the problem was made from the points of view of the military educational (or school) library and of the military technical library. Participants were divided into groups representative of these two categories, and a leader was assigned to each group to stimulate and guide discussion. Deliberations were based on previously prepared draft standards for both school and technical libraries. These draft standards outlined briefly staff requirements in the major professional and nonprofessional library functions, the ratio of professional personnel to clientele served and the ratio of nonprofessional to professional staff.

In the report presented to the summary and planning session, it was evident that the need for standards was agreed upon. Due to the diversity of the libraries represented, however, there was some conflict as to what should be included in the standards and some doubt that a set of personnel standards to be used by various types of military libraries could be developed. Nevertheless, it was felt that progress had been made, and the general feeling was one of encouragement. The results of these discussions will be studied by the Military Librarians Division's Standards Committee in continuing its efforts towards developing a guide for determining staff requirements for military libraries.

FRANCES L. CAREY
Chairman, Military Librarians Division

NEW INTERMEDIATE COMPUTER

The latest addition to IBM's 1400 series of solid-state computers is the IBM 1410. Like the earlier model, the 1401, the 1410 is available in four basic models: card, tape, RAMAC and RAMAC/tape. The primary difference between the two systems is that the 1410 has approximately two-and-one-half times the internal speed and maximum core memory capacity of the 1401. Its central processing unit can have ten, 20 or 40 thousand positions of magnetic core storage at the option of the user, as against the 16,000 positions maximum of the 1401. Newly developed units, such as new disk storage and input-output devices, permit transition from a 1401 to a 1410 with a minimum of systems development costs. Both data processing systems offer random access storage of information.

DIVISION SUBSCRIPTION BULLETINS

DIVISION	TITLE	EDITOR	COVERAGE	FORMAT	ISSUES A YEAR	PRICE	PAY CHECK TO AND SUBSCRIPTION FROM
ADVERTISING	*What's New in Advertising and Marketing*	Mrs. Beth Atkins J. M. Mathes, Inc. 260 Madison Ave. New York 16, N. Y.	Advertising, media and marketing publications; consumer surveys and bibliographies; pre-publication announcements; analyses of important books, services, and periodicals	9 pages mimeo	10	$3.50 members $5.00 nonmembers	Advertising Division* Frances Ford Fuller & Smith & Ross, Inc. 666 Fifth Ave. New York 19, N. Y.
ADVERTISING	*Bulletin from the Advertising Division*	Louise Stoops United States Steel Corp. 71 Broadway New York 6, N. Y.	Division news; letters to the editor; interchange of professional methods and procedures	15 pages mimeo	4-5	Free to members $2.00 nonmembers	Advertising Division* Catharine Lynch American Broadcasting Co. 7 West 66th St. New York 23, N. Y.
BIOLOGICAL SCIENCES	*The Reminder*	William K. Beatty School of Medicine University of Missouri Columbia, Mo.	News notes, official notices, original articles	45-50 pages Multilith or mimeo	4	Free to members $2.00 nonmembers	Biological Sciences Division* William K. Beatty See under Editor
BUSINESS AND FINANCE	*Business and Finance Division Bulletin*	Rosemary R. Demarest Price Waterhouse & Co. 56 Pine St. New York 5, N. Y.	Division news; book reviews; bibliographies; articles; project reports; business services evaluation	20 pages mimeo	4	$3.00	Business and Finance Division* Mary Fairweather J. Henry Schroder Banking Corp. 57 Broadway New York 15, N. Y.
GEOGRAPHY AND MAP	*Geography and Map Bulletin*	George Dalphin Dartmouth College Library Hanover, N. H.	Division news; book reviews; bibliographies; articles; membership lists; project reports	30 pages Multilith	4	Free to members $3.00 nonmembers	Mary Murphy 5632 MacArthur Blvd. Washington 16, D. C.
INSURANCE	*Insurance Book Reviews*	Karl Brown Box 40 Madison Square Station New York 10, N. Y.	Bibliographies; book reviews	4 pages offset	10	$3.50/yr. $6.00/2 yrs.	Agnes Brite New England Mutual Life Insurance Company 501 Boylston St. Boston 17, Mass.
PICTURE	*Pi turescope*	Mrs. Minna Breuer 143 Melrose Albany 3, N. Y.	Division news; bibliographies; articles; book reviews; membership list; project reports; abstracts	7-8 pages Multilith	4	Free to members $2.00 nonmembers	Mrs. R. Krystyna Dietrich 2796 Sedgwick Ave. New York 68, N. Y.
SCIENCE-TECHNOLOGY	*Sci-Tech News*	Gordon Randall General Delivery Yorktown Heights, N. Y.	Division and Section news; project reports; new serial titles; abstracts; bibliographies; articles	28-36 pages printed	4	Free to members $1.00 nonmembers	Science Technology Division* Gordon Randall See under Editor
SCIENCE-TECHNOLOGY	*Scientific Meetings*	Gertrude Bloomer The William S. Merrell Co. Lockland Station Cincinnati 15, Ohio	Forthcoming conventions, expositions and symposia, arranged by name of sponsoring organizations; chronological index	Various pages offset	3	$4.00	Scientific Meetings Joan M. Hutchinson 3222 Harry Lee Lane Apt. 4 Cincinnati 39, Ohio
S-T PHARMACEUTICAL SECTION	*Unlisted Drugs*	Donald Gholston Squibb Institute for Medical Research New Brunswick, N. J.	List of new drugs and composition with reference to source	11-13 pages photo-reduced Multilith	12 plus semi-annual, annual, cumulative index	$8.00	Pharmaceutical Section* Miss Elizabeth S. Eaton Mead Johnson & Co. Evansville 21, Ind.
S-T PHARMACEUTICAL SECTION	*COPNIP List*	Mrs. Charlotte Mitchell Miles Laboratories Elkhart, Ind.	Listing of current free industrial or institutional pamphlet material of an informative nature	5-6 pages mimeo	4	$3.00	Pharmaceutical Section* Mr. Reginald Smith Strong Cobb Arner, Inc. 2654 Lisbon Rd. Cleveland 4, Ohio

* Add "Special Libraries Association" to Division name when making out checks

News From SLA Headquarters

During its two days of meetings at the Gramercy Park Hotel in New York City, September 29 and 30, the Executive Board made a number of decisions, the most important of which are reported briefly here. Details will appear in the *SLA Bulletin.*

The Board approved funds for the publication of a membership directory, and work on its compilation is underway. It is hoped that the printed directory will be ready for distribution in December.

Alberta L. Brown has been selected to direct the Survey of Translation Activities in Universities, Societies and Industry in the Fields of Science and Technology, which is being carried on by the SLA Translations Center with a $34,105 grant from the National Science Foundation. It is expected that the Survey will be completed in May 1961. Mrs. Ildiko D. Nowak, formerly Assistant Chief of the Translations Center, has been appointed Chief to succeed Donald W. Ramsdell.

During the summer a vote by members of the Hospital Division indicated that the membership was no longer in favor of supporting the Division. The Board voted approval of the dissolution of this Division, but it is expected that the formal dissolution will not take place until the San Francisco Convention next June.

The Convention Advisory Committee is working on a complete revision of the Convention Manual. Two more Conventions have been scheduled: the 1968 Convention will be held in Los Angeles and the 1969 Convention in Montreal.

The Board also authorized the formation of a Convention Program Committee whose purpose will be to provide continuity and general supervision for future Convention programs. The new standing committee, which is at present being appointed, will first function at the 1962 Convention in Washington, D. C.

The Constitution and Bylaws Committee submitted a partial first draft of a revised Constitution. The Committee's aim is to simplify the present rather cumbersome working structure of the Constitution so that the Association can carry on its business more efficiently and economically.

The Board authorized the formation of a committee to study standards of transliteration, particularly Cyrillic transliteration problems.

The plans of the Professional Standards Committee for Division representatives to be appointed and for Division committees to study the formulation of standards for special libraries were approved by the Board.

The H. W. Wilson Company Chapter Award for 1961 will be given to a Chapter for an outstanding project publicizing to the general public during National Library Week the role of special libraries.

The Board approved a general budget of $152,055 and a $51,000 budget for the Translations Center.

Steps for conducting a campaign to attract more Sustaining memberships were considered as were the functions of proposed Placement Service and Legislative Affairs Committees.

Additions and Changes in the 1960-1961 SLA Official Directory

RESOLUTIONS REFERENCE: Marjorie Griffin, Advanced Systems Development Division, International Business Machines Corporation, San Jose, California

AMERICAN LIBRARY ASSOCIATION, RESOURCES AND TECHNICAL SERVICE DIVISION, BOOK BINDING COMMITTEE (Advisory for Library Technology Project study of performance standards for library binding): Paul Howard, 2755 North Wyoming Street, Arlington 13, Virginia

AMERICAN STANDARDS ASSOCIATION, Z-85: Erna L. Gramse, Food Machinery & Chemical Corporation, 161 East 42nd Street, New York 17, New York

CONSULTATION SERVICE: Mrs. Florence H. Armstrong, Defense Systems Division, General Motors Corp., 12 Mile and Mound Roads, Warren, Michigan

OAK RIDGE CHAPTER: John M. Bobb, 135 Villanova Road, Oak Ridge, Tennessee

Have You Heard . . .

New Quarters for ALA

In Chicago last month ground was broken for a five-story, $1,000,000 office building for the American Library Association's national headquarters, and at the same time, a drive was begun to help raise the funds needed for construction. The new office building is designed by Holabird and Root, Chicago architectural firm, and will replace the present headquarters, the former mansion of the late Cyrus Hall McCormick, located at 50 East Huron Street. The first phase of the building is expected to be completed by the fall of 1961 and the second phase by the spring of 1962.

Members in the News

ELIZABETH O. CULLEN, has retired after 43 years with the Bureau of Railway Economics of the Association of American Railroads, of whose reference library in Washington, D. C. she has been chief librarian for the past 12 years.

MARY JANE HENDERSON, who was associated with the library of Sun Life Assurance Company of Canada in Montreal until two years ago when she went to Montreal Trust, has retired. She was the Montreal Chapter's first President in 1932.

New ADI Director

Dr. John B. Kaiser has been appointed to the newly created post of Executive Director of the American Documentation Institute. He has served as Director of the Newark Public Library, New Jersey, and the Oakland Public Library, California. Dr. Kaiser's temporary offices for ADI are at 1025 Connecticut Avenue, N.W., Washington, D. C.

Bowker Distributing Fact Service

The R. R. Bowker Company has recently become associated with Deadline Data on World Affairs, a card fact service started in 1955 and now consisting of more than 5,000 5 x 8 cards arranged in chronological and alphabetical order. A subject index facilitates use of the file, which is housed in a four-drawer steel cabinet. Weekly supplements of about 50 cards keep the file up-to-date. Subscriptions to libraries and institutions are $200, and new subscribers receive the basic 5,000 card file plus the metal storage cabinet. Samples, further information and subscriptions are available from R. R. Bowker Company, 62 West 45th Street, New York 36.

Small, Low-cost Microfilm Reader

Recordak Corporation, the Eastman Kodak Company subsidiary in the microfilm and business systems field, has announced a new, lightweight, microfilm reader, the Recordak 310. The unit is less than 20 inches high, weighs 23 pounds, has a 9 x 12 inch, light green viewing screen and will accommodate 16mm unperforated microfilm in 100 foot rolls. The machine features full 90 degree image rotation, a side film advance lever and is available in reduction ratios of 20:1, 24:1, 32:1 and 40:1.

Grant for ALA Exposition Participation

The American Library Association has received a $30,991 grant from the Council on Library Resources, Inc. for planning a "Library of the Future" exhibit at the Century 21 Exposition in Seattle in 1962 from April 21 to October 21. ALA will use the funds to develop specific plans for its participation in the Exposition. The new grant is in addition to one of $2000 received last May for a feasibility study.

Letters to the Editor

Elizabeth Owens' "Survey of Special Library Education" in the July-August issue of *Special Libraries* was of much interest to me because it touches something that I am particularly concerned about: the awarding of the SLA scholarships only to graduates of ALA accredited library schools.

We have had a library school at Immaculate Heart since 1952, and since that time we have had approximately 80 students finish in one of the programs offered: the master's degree, the Public Library Certificate and the California State Librarianship Credential. Among these students we have

a number who are in special library work, e.g., Atomics International at Canoga Park; Lockheed, Missile and Space Division, Palo Alto; Business Administration Library, UCLA; and the Municipal Reference Department of the Water and Power Division of the Los Angeles Public Library.

Most of our program has been geared to those who are already working in libraries but cannot take a year or so off to complete their library science study. Enrolled now, for example, are the librarians from Consolidated Electrodynamics in Pasadena and the Western Personnel Institute, also in Pasadena. These people are able to come in the late afternoons, evenings and on Saturdays (or take a full program if they want) and finish in a couple of years.

In the area of special library work we have offered the following courses:

Special Library Services (coordinated by Dr. Hazel Pulling but using many of the outstanding librarians in the area)

Hospital Librarianship (Mary Jane Ryan, formerly VA Hospital Librarian at Sepulveda, California)

Reference and Bibliography in the Sciences

Reference and Bibliography in the Humanities and Social Sciences (Dr. Pulling and Sr. Lucille)

Chemical Literature (Sr. Agnes Ann, Ph.D.)

We have never had any trouble placing our graduates; in fact, as with most library schools, we can't begin to fill the demand. This, in spite of the fact that we are not ALA accredited—at least not yet. However, we do have regional accreditation (Western College Association) and the State accreditation.

It seems to us, and I'm sure to many who are in the same situation we are, that if we have a partial accreditation such as we have and we *are* producing librarians who are apparently satisfactory to their employers, our students should also have a chance at such opportunities as the SLA scholarships. Could the wording be "at an accredited library school" (the phrase used now in many listings in the library journals) and leave it up to the committee as to what kind of accreditation that would be acceptable?

I do not mean this to be critical of either ALA or SLA as I am as concerned about keeping up the standards in library education as anyone in either association, I'm sure; however, I do believe that we are cutting off many potential librarians by such stipulations. We hope that some consideration of a change in policy along this line might be taken up by your committee.

SISTER M. LUCILLE, Dean, School of Library Science
Immaculate Heart College, Los Angeles, California

I am endeavoring to collect case histories of the occurrence of financial loss due to lack of information. Such loss may occur in several ways, for example: *a)* duplication of research already done elsewhere and fully reported; *b)* marketing a product which has already been bettered by a competitor, information having been revealed in technical journals at the patent application stage; *c)* using an obsolete process.

A small number of cases have been revealed by my enquiries to date, but very few of these are fully documented, owing to a somewhat natural reticence on the part of the organizations concerned.

There must, however, be a large number of (a)-type cases buried in the literature—"buried" because no index would reveal their presence. The only way to conduct a search for these would seem to be the scanning, virtually page by page, of all likely periodicals—a mammoth task.

Some of your readers may have happened upon such cases in the course of their reading, and I should be very grateful if any available details could be sent to me. Also, some readers may, in view of the increasing interest in these matters, have started a "cost record" of the information supplied day by day in response to major specific enquiries. The question one would pose in compiling such a record would be, "About how much would it have cost the firm to (a) get this information elsewhere, or (b) duplicate the experiment concerned or (c) do without it?"

I learn from Aslib that it is currently considering the initiation of a survey on this subject and that the Case Institute of Technology has received a grant from the National Science Foundation for research on the measurement of the value of recorded scientific information.

The evaluation of technical information, though fraught with various difficulties, is a task very much in line with our professional aims and interests. Once again, I would appreciate the supply of any data which may be available.

RAYMOND A. WALL, Librarian
A. V. Roe & Co., Ltd.
(Home address: 9, Longnor Road,
Hazel Grove, Cheshire, England)

The response received to my recent request in this and other journals as to the extent to which librarians and workers in chemical literature would support a proposed detailed bibliographical expansion of the Dewey Decimal Classification for 540 Chemistry and 660 Chemical Technology has indicated the existence of relatively little interest in such a publication, certainly not enough to provide it with the necessary financial support. Therefore, at its meeting on September 30, 1960, the Decimal Classification Editorial Policy Committee recommended to the Forest Press, Inc., which publishes the DC, and to the Library of Congress, which edits it, that for the present (at least the next five years) this project be dropped from consideration.

BENJAMIN A. CUSTER, Editor
Decimal Classification Office
The Library of Congress, Washington 25, D. C.

NATIONAL LIBRARY WEEK
April 16-22, 1961

Off the Press . . .

Book Review

PRODUCTION AND USE OF MICROFORMS (State of the Library Art, volume 5, part 1, edited by Ralph R. Shaw). *Reginald R. Hawkins.* New Brunswick, N. J.: Graduate School of Library Service—Rutgers, 1960, 208 p. $5. Distributed by Rutgers University Press.

This monograph is one of the first to be published in a series of volumes with the general title The State of the Art. The projected series, edited by Ralph R. Shaw, is expected to cover many phases of librarianship and bibliography. It is a review of the status of our current knowledge of the production of microforms. The published and unpublished literature has been surveyed and summarized in digest form under a number of headings which include: History of Microcopying, Equipment and Materials, Photographic Methods, Types and Characteristics, Quality Factors, Production Costs, Preservation and Storage and also Retrieval and Enlargement.

Mr. Hawkins was formerly Chief of the Science and Technology Division of the New York Public Library. He is well-known to librarians as the former editor of *New Technical Books,* a bimonthly publication of the New York Public Library, and also as the editor of *Scientific, Medical and Technical Books Published in the U. S. A.* The present work serves as a guide to the outstanding literature in this area. It lists 439 references. The earliest information is dated 1853 and the latest information is dated 1957.

The history of microcopying is sufficiently covered by presenting the most important ideas and devices that had been developed up to 1957. The date 1936 "Marks the turning point in the acceptance of microcopying as a practical library technique." Robert C. Brinkley's *Manual on Methods of Reproducing Research Materials,* published in 1936, still remains a classic in its field. It has been out of print but should be reprinted since it contains much useful information.

Brief information is given about equipment and materials. The author states that this section should not be considered a basis for selection. Although no references were cited for the 3M reader-printer, one reference with an illustration appeared in *Special Libraries* in November 1957 (page 404). A reader-printer is also now available from Documat, Inc.

As a result of his study Mr. Hawkins has proposed five projects for further research in the production of microforms.

1. To examine critically the various microforms which are necessary and the extent to which each is now used nationally and internationally and to investigate the merits of the microfiche and microfilm. He poses the question that if three types were selected for survival, could the forms and dimensions be correlated so that one type reader could accept them.
2. To tabulate and evaluate quality factors for each type microform.
3. To study cost factors in routine library microcopying.
4. To investigate a proposal made by Metcalf in 1936 that a central organization build a file of microcopy masters from which orders could be filled.
5. To explore the needs for rapid large-scale retrieval from microfilm microcopy by critically examining the present devices and pointing out the gaps which should be filled.

The size and content of the monograph did not permit illustrations. A list of manufacturers might prove useful to the librarian. The book is recommended for background information in a rapidly expanding field. The proposed projects present problems which should be considered by all librarians who seek to obtain literature in microform whether from abroad or in the United States.

LORETTA J. KIERSKY, Librarian
Air Reduction Company, Inc.
Murray Hill, New Jersey
Chairman, Photographic Reproduction Committee

SLA Authors

BROMBERG, ERIK. Using the Literature to Solve Your Corrosion Problems. *Australian Corrosion Engineering,* vol. 4, no. 7, July 1960, p. 9-13.

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DANIELLS, LORNA M. *Studies in Enterprise, 1959,* A Selected Bibliography. Boston: Baker Library, Harvard University Graduate School of Business Administration, 1960, 24 p. $1.00. (Reprinted from *Business History Review,* vol. XXXIV, no. 2, Summer 1960.)

DOWNS, ROBERT B., co-author. Price Tag on a University Library. *College & Research Libraries,* vol. 21, no. 5, p. 359-61; 404.

HYSLOP, MARJORIE R. Metallurgical Documentation from Research to Practice. *Journal of the Franklin Institute,* vol. 270, no. 1, p. 27-33.

KENT, ALLEN. Machine Literature Searching in Science. *Journal of the Franklin Institute,* vol. 270, no. 1, p. 42-50.

STEBBINS, KATHLEEN B. Subject Specialties of Certain U. S. Library Schools. *Canadian Library,* vol. 17, no. 2, September 1960, p. 73-6.

Reprints of LC Cards in Book Form

Pageant Books, Inc. of Paterson, New Jersey, has completed the *Library of Congress Catalog of Printed Cards 1898-1942,* the *First Supplement,* 1942 to 1947 and the *Second Supplement,* 1948 to 1952. For the period starting 1898, more than two million cards have been reproduced in 167 vol-

umes. Each page contains 18 cards, and there are 180,000 cross references. The price is $1500. The *First Supplement,* containing 42 volumes, costs $395, and the last of the series is in 24 volumes, priced at $240. Pageant also has printed *The Quinquennial Edition* of the Library of Congress Catalog of Books: Subject 1955-1959 in 22 volumes for $247.50.

Informative Library Reprint

"Building a Public Administration Library," an article prepared by William N. Rairigh, assistant librarian of the Joint Reference Library in Chicago, discusses many of the problems encountered in building a special library and gives several guides to experienced and inexperienced librarians. Reprints of the article, which appeared in the Summer 1960 issue of *Management Forum,* may be obtained for 50¢ from the American Society for Public Administration, 6042 Kimbark Avenue, Chicago 37. Bulk discounts may be had upon application.

Biological Code

The National Academy of Sciences-National Research Council has published the Biology Code developed by the Chemical-Biological Coordination Center and used by the Center for coding (indexing) its large collection of information for IBM punched card storage. The first volume contains the complete information classification scheme, the code items and the code symbols; the second volume is a "Key" describing the use of each of the code lists and giving detailed explanations and instructions for the use of the code symbols. Although designed for coding biological responses to chemicals, the code can, with slight modifications, be adapted to code information from other areas of science. The set costs $12 while separate volumes are $7 each. Orders should be sent to the Printing and Publishing Office, National Academy of Sciences, 2101 Constitution Avenue, Washington 25, D. C.

RECENT REFERENCES

DIRECTORY OF PERIODICALS PUBLISHING ARTICLES IN ENGLISH AND AMERICAN LITERATURE AND LANGUAGE. *Donna Gerstenberger* and *George Hendrick,* comps. Denver: Alan Swallow, 1960. 180 p. $3.50; pap., $1.75.

Gives subject field of magazine, address, editors, editorial policies, forms in which manuscripts should be sent and other pertinent information.

HOW TO OBTAIN AND USE BUSINESS INFORMATION. *Vira De Sherbinin.* New York: Know Publications, Inc., 799 Broadway, 1960. 68 p. pap. $15.

Part I describes the role of research in business and the ways a company can most effectively utilize its research program. Part II analyzes the researcher's job, the organization of a research department and the handling of research materials. Appendices list important foreign and domestic primary sources of business information, Department of Commerce field offices and public libraries with special business departments.

RUSSIAN-ENGLISH GLOSSARY OF ABBREVIATIONS OCCURRING IN PHYSICS LITERATURE. New York: Interlanguage Dictionaries Publishing Corp., 227 West 17th Street, 1960. 64 p. pap. Not for sale.

Interim gratis glossary for subscribers to the *Russian-English Physics Dictionary* to be published in 1960 by John Wiley and Sons, Inc.

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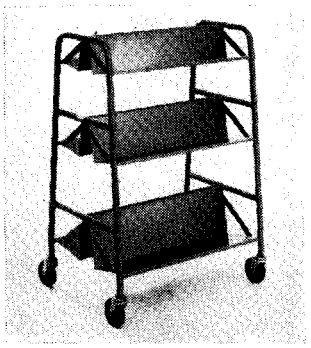

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